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ABSTRACT

This revised publication focuses on selection issues relating to multicultural anti-bias curriculum, diversity, and inclusion while giving special consideration to the use of computers in classrooms. The first part of the booklet deals with the learning environment. The first article, "Creating the Learning Environment: Context for Learning and Living" (S. Vianne McLean), discusses the role of the environment in building the curriculum and factors to consider when setting up a classroom environment. The second article, "Collecting, Compiling, Constructing, Creating" (Oralie McAfee), offers suggestions for evaluating materials in commercial kits and help in selecting materials appropriate for achieving a teacher's curriculum goals. The third article, "Some Considerations in Equipping a Child Care Center or School" (E. Anne Eddowes), addresses the specifics of selecting equipment on the basis of program goals, children's needs, cultural factors and special needs. The last article in this section, "Children and Technology" (Joan P. Isenberg and Teresa Rosegrant), examines the effect of technology on curriculum, teaching and learning and provides criteria for evaluating software. The second part of this book consists of lists of suggested materials created by subject experts and organized by developmental levels: infant/toddler groups (Kathleen Ralph), preschool groups (Qiuping Cao and Betsy Mercado), and kindergarten groups (Carol Sue Marshall and Paula Weaver-Blackshear); and early elementary (Mary Lu Syllaba), later elementary, (L. Ruth Frederick), and middle school (P. Elizabeth Pate). The lists of basic materials and extensions serve as guides for equipping classrooms in group settings and should not be regarded as inventories. Most chapters contain references. (BAC)

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Selecting Educational Equipment and Materials

For School and Home

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Introduction

Selecting Educational Equipment and Materials for School and Home is one of ACEI's most frequently requested publications. Since its initial publication in 1925, the booklet has undergone a plethora of revisions and updates, often keyed to societal and educational changes. This revision continues to emphasize multicultural, anti-bias curriculum and to consider diversity and inclusion, topics that received mention in earlier editions. Nine years have passed since the last revision of this book. During that time, classrooms have been significantly affected by the widespread use of computers in schools and the tremendous increase in the types and quality of software available for children's use. Therefore, this topic is given special consideration.

Articles and Authors

Issues relating to multicultural anti-bias curriculum, diversity and inclusion continue to merit our concern. Although advancements have been made, progress toward eliminating prejudice and biases against people who are different in some way has been slow and uneven. Such concerns can be found in the subtext of all the articles in this publication.

S. Vianne McLean establishes the framework for this publication by discussing the role of the environment as a building block for the curriculum. She also discusses factors to consider when setting up a classroom environment, including the skill and knowledge of the teacher.

Oralie McAfee recommends educators consider whether to buy, make or "scrounge" materials for the classroom. She offers suggestions for evaluating materials in commercial kits and help in selecting those materials that are appropriate for use in achieving a teacher's curriculum goals.

E. Anne Eddowes addresses the specifics of equipping a child care center, based on identification of appropriate program goals and children's needs, including cultural factors and special needs considerations.

Joan Isenberg and *Teresa Rosegrant* examine the effect technology has had on curriculum, teaching and learning. The authors make it easier to select appropriate software for classroom use by providing criteria for evaluating software.

Materials Lists

The lists of materials are organized by developmental levels—from infancy to middle school. The lists of basic materials and extensions should serve as guides for equipping classrooms in group settings. The lists should not be treated as inventories.

Over the years, many people have contributed to this publication as members of Equipment and Supplies committees (or ad-hoc committees) or as members of the Infancy, Early Childhood, Later Childhood and Early Adolescence committees. The influence of their work in earlier editions is reflected in the current edition. Their contributions are gratefully acknowledged.

—Joan Moyer, Editor/Coordinator

Part One

The Learning Environment

Creating the Learning Environment: Context for Living and Learning
S. Vianne McLean

Collecting, Compiling, Constructing, Creating
Oralie McAfee

Some Considerations in Equipping a Child Care Center or School
E. Anne Eddowes

Children and Technology
Joan P. Isenberg and Teresa Rosegrant

Creating the Learning Environment:

Context for Living and Learning

S. Vianne McLean

When child-centered educators think about their curriculum work, they place children at the heart of the matter. They do not view curriculum planning as finding ways to transmit given content information to amorphous children. Rather, it is a matter of finding ways to support specific children in their efforts to construct their own understandings and develop the skills, attitudes and dispositions that society considers valuable. The often heard statement "We place children at the center of our curriculum decision-making" is a way of expressing a common identity as child-centered educators and a belief in using knowledge of children when making practical curriculum decisions.

The statement leaves much unsaid, however, because while knowledge of, and concern about, children undoubtedly are central to decisions about practice, the decisions must also be made in terms of the environment. Children live and learn within a specific environment, whether an infant child care program, an elementary school classroom or a home setting. That environment may support or hinder children's learning to different degrees. In educational settings, the quality of physical and human environments cannot be left to chance. They should be purposefully created to provide the maximum possible support for children's development and learning—what Torelli (1992) has called a "developmentally designed environment."

The effect of the environment on adult emotions, functioning and personal interactions has been extensively explored over the last few decades by social and environmental psychologists, such as Mehrabian and Diamond (1971) and Russell and Mehrabian (1978). Child-centered educators, however, have recognized the importance of the learning environment for over a century. This emphasis on understanding children in the environmental context reflects these educators' philosophical beliefs about the nature of children and their development. They believe that children learn best by actively engaging with real objects, exploring personal interests in meaningful ways, interacting positively with others and making choices within the structure of a supportive environment. The design of that supportive environment therefore assumes critical importance in the enactment of a child-responsive curriculum.

Building Blocks of the Curriculum: Lesson or Environment?

At many levels of education, the basic building block of teacher planning and student experiences is "the lesson." This small piece of planned educational experience is boundaried primarily by time, but also is defined by the teacher's explicitly specified intentions (i.e., specific objectives, specific materials, specific interactions between teacher and learners and, often, specific child outcomes). Inherent in the concept of "lesson" is the assumption that the teacher is the primary decision maker and orchestrator of children's activity.

Over many decades, the concept of "lesson" has been problematic for educators trying to

enact a child-centered curriculum. The concept simply does not fit well with a view of children as active learners who construct their own understandings and who need to make many of their own decisions, to explore and combine materials in their own meaningful ways and to solve real-life problems as they explore and experiment within a rich learning environment. From this perspective, it is not logical to consider the curriculum a collection of discrete teacher-defined and orchestrated, time-boundaried and narrowly-focused "lessons." Rather, child-centered educators view the classroom as a learning community that operates within an environment that is deliberately created for educational purposes. The basic building block of the curriculum becomes the learning environment instead of the lesson.

The learning environment should be created as deliberately and concretely as the lesson. Teachers still consider what children need to work on, what skills they should use and what they should learn. Using the learning environment as the conceptual framework, however, makes it easier to create space for children to make decisions, pursue their own interests and set their own pace.

Considering the learning environment to be the basic curriculum building block also is reflected in the language used to describe the curriculum. Outcomes are more likely to be stated in broader terms, rather than as small fragments of knowledge or skill. Also, the whole time span of the teacher's curriculum deliberations is likely to be long-term, rather than short-term. Teachers operating from an understanding of the curriculum as an ongoing learning environment are unlikely to be as concerned about the need for small, measurable child-outcomes from each short lesson. Rather, they will be trying to create a context that provides continuing learning opportunities for children over a much longer time frame, and will be striving for deep-rooted, long lasting learning competence and self-confidence (Blenkin & Kelly, 1987).

Creators of the Learning Environment: Teachers, Children, Families, Communities

While the teacher holds the major responsibility in creating the learning environment, children also play an important role, helping shape the environment according to their behavior, needs and interests. Experienced teachers understand that the children have a direct influence on the nature of the learning environment that exists within the classroom walls. Each group of children develops its own unique persona, and even a one-day absence by a child can dramatically alter the dynamics of the group. When the teacher is sensitive and responsive to children's particular interests, the children also exert a different type of influence on the learning environment—bringing in found objects or books that interest them, advocating for particular topics to be explored in groups, negotiating with the teacher and other children for increased workspace or for display of materials or the products of their cooperative work.

Children also may play a less direct, but no less influential, role in the creation of the learning environment. The teacher's professional and personal knowledge of each child will be factored into every environmental decision. On a professional level, the teacher will consider what is developmentally appropriate for this age range of children. On the personal level, the teacher will consider what is possible and practical with this particular group of children in this particular time and place.

Applying only a general knowledge of child development sequences and processes might lead a teacher to provide the same developmentally appropriate activity year after year. Astute observers who are truly responsive to children's individual needs and interests, however, would be very unlikely to use a particular activity in an identical manner with different groups of children. They know that what works for one group of children could well be all wrong for another, even if the groups are at basically the same developmental level. A teacher's decision to modify or reject an activity for a particular group of children

reflects another indirect influence of the children on design of the learning environment.

Families and other community members also affect the physical and human learning environments, either directly or indirectly, by spending time in the classroom, helping to provide materials and resources or communicating their expectations for the learning environment. When teachers are sensitive to the broader social and cultural lives of the children in their care, the learning environments reflect those sociocultural contexts as well as the geographical locations of the school or center. Classrooms should not be neutral, interchangeable, standardized environments. Classes of children are communities and their spaces for living and learning should reflect the uniqueness of the community members, as well as their shared experiences as a group (Carini, 1986).

Design of the Environment or Provisioning of the Environment?

Purpose-designed and aesthetically pleasing materials historically have been a part of early education. Froebel meticulously designed "occupations" and "gifts" in the mid-19th century, Patty Smith Hill painstakingly developed wooden project blocks in the early 20th century and Maria Montessori created magnificent manipulative equipment that is still widely used today. The careful design and production of these materials manifest the following two important environmental values: 1) children should manipulate concrete objects that embody a clear pedagogical purpose and 2) children are worthy of the highest quality, most aesthetically pleasing environment we can provide.

Few educators, however, have had the luxury of working in purpose-designed buildings equipped with every conceivable item of specialist equipment. A less well-documented, but very important, part of education's history is the story of educators who have been expert improvisers. They creatively adapt materials designed for other purposes to help them meet the need they perceive when creating learning environments for specific children. Long before it became socially correct, educators were expert recyclers.

Education can happen anywhere, and often does. A very wise preschool consultant, well known in Australia in the 1960s through 1980s, used to say, "A good early childhood teacher can teach with only a patch of shade under a gum tree." Her statement reflects a long-standing truism in education: the sophistication of the architectural environment does not matter as much as what the teacher does with what is available. Under the proverbial gum tree, the teacher would not be using only her voice to instruct a group of children. Instead the gum tree would provide shade for a whole exciting environment that children can explore, even if the materials are only leaves, sticks, pebbles and found objects. (But let me hasten to reiterate that the gum tree is a symbol. Australia has some of the best purpose-designed early childhood architectural and playground environments in the world (Walsh, 1991).)

Environment as Curriculum

Gail Halliwell (1990) describes the early childhood curriculum as a learning environment: a planned arrangement of ideas, people, time, space and resources. This holistic way of thinking about the curriculum has great utility for teachers enacting a child-centered curriculum. With this perspective, educators can overcome the conceptual limitations of thinking about the curriculum as an abstract list of subject matter to be covered or a collection of lesson plans to be implemented. Instead, it helps the teacher consider the totality of what children actually experience when they are participating in educational activities within the classroom. Halliwell's dimensions also provide a useful framework for considering educational environments.

Ideas. Although this abstract dimension may not have a concrete reality, its influence is everywhere in the learning environment. Teachers devise environments for children

according to their ideas about how children develop and learn. While teaching is far too complex an activity to ever display clear-cut, cause-effect connections between belief and action, it is an interesting exercise to search classroom environments for concrete clues about the teachers' underlying beliefs. For example, a classroom might be set up to give children a great deal of responsibility for meeting their own needs. In preschool or kindergarten classrooms, clothespins replace bulldog clips at the easels, allowing children to attach and remove painting paper without adult assistance. At any grade level, clean up materials might be provided where they are most likely to be needed, enabling children to take immediate responsibility for cleaning up. In a primary grades classroom, simple sign-up sheets and checklists can help children self-manage complex multi-step activities, such as conferencing in a writer's workshop.

By creating an environment that supports children's efforts to attend to their own needs, the teacher's ideas are concretely manifested. Such an environment demonstrates respect for children's abilities and recognition of their desire for self-sufficiency.

A teacher who sees children as less competent and with limited ideas of their own would not expect so much of them and would, therefore, devise a very different type of learning environment. A large part of the classroom probably would be arranged for whole class instruction, ensuring all children could see the teacher and blackboard easily in order to follow the teacher's verbal instructions each step of the way. The range of materials available to children would be more limited, and access to those materials would be more teacher-controlled. The teacher might distribute only those materials needed for a single, whole group lesson.

Ideas about how children learn and how best to support that learning have a direct and powerful impact on every aspect of the classroom environment. While the teacher's ideas are very powerful, the ideas that dominate the education system also carry great influence. For example, some school districts follow reading models that are very prescriptive in terms of the learning environment, even providing teachers with specific room arrangement charts. Such prescription severely curtails use of teachers' professional judgment. It is a tribute to these teachers' problem-solving and negotiating abilities that they so often find ways to subvert the prescriptions and create learning environments that reflect what they believe to be best for their children.

Given the complexity of teachers' work, and the multitude of influences on the curriculum, it is not surprising that tight cause-effect relationships between teacher belief and practical decisions are seldom discernible. Still, it is a useful exercise for teachers to reflect on the "if-then" connection between their beliefs about children, their development and learning, and the environment that is created for them. "If I believe this about children . . . then this is the type of environment I should be providing for them" (Early Childhood Curriculum Committee, 1978).

Reflective teachers understand that the environments they create for children reflect their own ideas and professional knowledge. They also know, however, how easy it is to drift into practices that do not connect well with what they value for children. Therefore, they try to stay tuned in to their own decisions about the learning environment and constantly question themselves: "Why do I arrange it this way? Why do I provide this and not that? What else might I be doing to provide more opportunities for learning?" This level of self-questioning goes beyond "What works?," which deals only with the surface-level practicalities, and really tries to make explicit the connections between the teachers' deeply held ideas about children and the decisions they make about the learning environment.

People. This dimension often is called the "human environment." It also permeates every aspect of children's learning environment. Children experience educational programs holistically. They do not maintain separate experiential boxes for "math" and "reading," or for "cognitive" and "affective." Neither do they separate the physical environment from the

human environment.

Children are adept at reading the messages of the human environment, even if these are contradicted by the messages of the physical environment. For example, some young children attend kindergarten and 1st-grade classrooms where dramatic play props or other enticing play materials are clearly visible, but children very quickly understand that these materials are to be used only on rare occasions. They also learn that activities involving these materials are not highly rated by their teacher. It is not "real work."

In a recent study (reported in McLean, Haas & Butler, in press), kindergartners demonstrated a clear understanding of the differences between the exploratory creative environment of a kindergarten enrichment classroom and the more constrained environment of an academically focused kindergarten classroom. The differences they chose to highlight, however, were less a result of the physical environment than of differences in teacher expectations regarding use of materials. For example, both types of classroom had centers, but:

> *[In kindergarten] We have to do what the teacher says. If she says "Color it!" you have to color it. . . . Mrs. Enrichment tells us what to do too, but we can pick our centers. Mrs. Kindergarten tells us what tub. (Alison)*

> *We have centers in both rooms, but we get to do the ones we want in here [Enrichment]. In Mrs. Kindergarten's room, we have to go where she says. (David)*

> *I like centers—when we get to do [the ones] we want. (Don)*

Interestingly, the kindergartners' interpretations of their experiences, focusing on the power relationships in the human environments, rather than the similarities of the physical environments, is in keeping with a series of studies reported by Russell and Mehrabian (1978). They suggest that dominant-submissive feelings among persons have much more effect on responses to environments than does the relationship between a person and the physical environment itself.

A high quality physical environment is hugely important in education settings. Without a facilitative human environment, however, it counts for little. In the visual arts arena, for example, it is widely accepted that children need a wide range of open-ended materials with which to explore, combine and create images and forms (Kolbe, 1991). Working alone, children may make some progress in their artistic development, if the physical environment is sufficiently attractive and stimulating. But to really engage with these materials, to talk and think about the images and how they might be enhanced, how they relate to other images and concrete realities, children need the supportive presence of an adult. To do this, children need the supportive presence of an adult. The vital role the adult plays is not so much to provide positive reinforcement, although a little authentic admiration never goes astray. Rather, the adult should notice, pose questions, draw attention to features, raise other possibilities and, sometimes, coach. A child-centered learning environment does not make the teacher redundant. Teacher support, encouragement and stimulation is always essential. Furthermore, some direct instruction always takes place, even in the most child-centered learning environment.

When considering the human environment, however, educators must recognize that classrooms should not begin and end with teacher and children. Parents, extended family, community members or resource people need to be included in the classroom community in order to provide rich opportunities for children's learning. Informal interaction with real people, be they members of another cultural group or a member of one's own community, is one of the most concrete and meaningful ways for children to explore social studies topics (Schram, 1992), and a powerful way to build links between the school and its community. These persons should not be rare visitors, whose primary value is novelty. They should be

a vital part of the regular learning environment, even if they are not permanent residents of the classroom.

Time. Timing decisions pose another critical design feature. Sensitive timing is essential to a quality educational program—in terms of both on-the-spot and long-term decision-making. Even within a single day, teachers must be able to judge when it is wise to extend an activity beyond the planned time, and when it is appropriate to cut it short. A child-centered curriculum that is responsive to children's needs and interests also needs considerable flexibility. In the highly regarded Reggio Emilia early childhood centers in Northern Italy, for example, topics remain in the curriculum as long as the children maintain interest (Gandini, 1993). Some topics may last only a few days and others for several months. This flexibility in long-term timing creates a very different learning environment than in classes where the teacher decides to introduce a new theme each week.

The critical difference between a thematic approach and a curriculum based on children's interests is in the distribution of decision-making power. In a child-centered environment, curriculum decisions are a matter of negotiation between teacher and children. A thematic curriculum approach typically places most of the decision-making responsibility in the hands of the teacher, who predetermines both the topics and how long they will be explored. Time limitations therefore dominate children's experience with materials. Often, children are rotated through activities in a manner that encourages only very shallow exploration. The rotation also takes away much of the opportunity for children to make choices.

To facilitate meaningful exploration and to extend children's capabilities, the materials have to be available over an extended period of time. Children need to know that they can return later in the day or the week to try out something new or repeat something tried earlier. The importance of novelty has been much overrated in education. Open-ended learning opportunities that offer the chance to explore, practice, hypothesize and problem-solve do not need gimmicks to make them attractive. Closed-ended activities or single encounters with narrowly focused centers provide children with very little opportunity for meaningful engagement. When children know they will be quickly rotated away from a specific topic, they are encouraged to make only fleeting contact with materials—rarely coming close to exhausting the learning possibilities.

Inevitably, learning environments are very busy places and timing decisions must be carefully considered. Even if the clock cannot be stilled, however, child responsive teachers understand the need to create the illusion that time is abundant. These teachers become expert at shifting gears—moving quickly and economically when attending to organizational matters and slowing down when interacting with individual children. They communicate to the child that there is time to ask this question, explore this possibility or test this hypothesis. A rich physical environment serves no purpose, unless children have the time to explore and manipulate it.

Space. The two final dimensions—space and resources—are the most concrete. They make up the physical environment and constitute a very important part of the learning environment. The effect of space on human functioning has been well documented by social and environmental psychologists.

The available space per child is rarely ideal; overcrowding is a fact of life in many early childhood programs and elementary schools. Although the sheer quantity of available space may be beyond the teacher's control, the way it is arranged and used may offer opportunities to positively affect the quality of human interactions in classrooms. The likelihood of conflicts among children, for example, can be lessened by ensuring unhindered access to supplies, physically separating incompatible activities/areas, providing clear thoroughfares to frequently visited sites and physically protecting children's completed work and work in progress.

It is possible to maximize the potential of any room, even when square footage is extremely limited, by considering needs for space to arrange materials, create effective workspaces and display children's work. One of the most important qualities of classroom space is flexibility (Day, 1983). Moveable shelving, moveable screens and large rugs extend the range of possibilities for rearrangement of space, allowing on-the-spot modifications as needed.

For example, if a field trip to a building site inspires kindergartners to build a whole city of skyscrapers with blocks, the space alloted for block building can expand into the room's open space at least for a day or two with strategically placed screens to protect the structures. If this means the area for drawing and painting or the book area has to be contracted for a few days, then that is a reasonable price to pay. Flexibility in space utilization is important at every grade level. Older children might create a mini-undersea environment as part of their ecology explorations or they might set up a temporary stage during a review of play writing. Flexible spaces that can accommodate evolving interests are invaluable.

While change for change's sake is not a sufficiently good reason to rearrange classroom spaces, most classrooms have particular areas that make successful locations for almost any activity. Such an area may have particularly effective lighting, be near a window with a pleasant view, be close to a water supply, or have a favorite wall display or floor treatment. By staying aware of children's current interests and favored activities, teachers can endlessly rearrange classroom spaces and vary the locations for activities, not only to provide more space for currently favored activities, but also to rekindle interest in out-of-favor activities.

Resources. The importance of providing a rich learning environment is a long-standing part of child-centered education philosophy (Cuffaro, 1991). From the beginning of this century, education theorists and practitioners have believed that children learn best in an environment that is full of possibilities—one with a diverse range of materials for children to explore and with which to solve problems. This belief is closely connected to the perception of the child as an active learner who is intrinsically interested in the world and motivated to explore and learn.

From this perspective, the teacher is not conceptualized as an instructor—someone who controls children's contact with the world for the purpose of learning by allowing only narrow, suitable simplified encounters. Rather, the teacher is considered a provisioner of the learning environment, a collector of interesting objects, a stimulator of interests and someone who knows just what questions to ask and comments to make. A great deal of support can be found for this long-standing philosophical position in recent research findings on child development and learning. Researchers are finding more and more evidence that supports a learning environment rich with materials and possibilities (Bredekamp, 1987; Bredekamp & Rosegrant, 1992; Elkind, 1986; Peck, McCaig & Sapp, 1988).

The value of classroom resources will depend not only on their inherent suitability and quality, but also on how they are displayed and used. To be motivated and engaged as active learners, children need to be surrounded by concrete objects—materials such as art supplies and manipulatives; equipment such as tables, chairs, easels, shelving and, increasingly, computers; props for play such as dress-up clothes and play money; resources such as books and natural objects or artifacts. These objects must be very well-organized and logically displayed and children must be familiar with the routines for using them and replacing them after use. Otherwise the learning environment quickly can become chaotic. Careful arrangement of display space enables even very young children to take some responsibility for maintaining the learning environment.

Different curriculum models favor different patterns for arranging resources and disagree about whether children should be free to carry materials from one area to another. When inappropriate use or movement of resources occurs, however, thoughtful teachers should

ask, "Why is this occurring? What resource problem is the child trying to solve here?" This is likely to raise for scrutiny deeper issues about the resource rules. Are they reasonable and necessary in terms of children's safety, protection of the resources or respect for the rights of others? If not, the rule for the use of this resource is likely to be revisited in a highly relevant manner.

Usually, it is possible to meet children's resource needs by permitting the children to relocate materials as a form of problem-solving or through direct teacher intervention, providing substitute or duplicate materials where necessary. For example, if preschool children are taking the crayons from the art area to become "sausages" in the dramatic play area, it is clear they have the need for some form of mock food. The crayons need to remain in the art area, so the teacher might provide some other small recycled junk material, such as plastic drink bottle lids, that can serve as "food."

By fine-tuning the available resources, teachers also can influence the nature of the children's activity and learning in certain classroom areas. For example, they can prompt meaningful image making and writing by supplying paper, crayons and pencils to the block area, so that children can draw or write about their constructions. Slightly different props and resources in the dramatic play area can change it from a home to a restaurant or office. A bright desk lamp and a collection of interesting objects in the science corner of an elementary classroom can stimulate a whole new interest in shadows. Black pens, crayons and white paper permit the scientific study of shadows to become an art experience as well.

A skilled teacher also can prompt desired social development outcomes through selective addition of resources. For example, Nan (McLean, 1991) skillfully used resources to help a sensitive preschool child successfully join a peer play group. When she noticed the child hovering on the edge of the group, Nan would quietly suggest she take an additional prop into the group. Although the girl lacked the necessary social skills or confidence to negotiate entry into a peer play group by herself, the environmental support provided by the teacher was highly successful. An early study by environmental psychologists Mehrabian and Diamond (1971) demonstrates the validity of this strategy, even with adults. They found that an interesting object could act as a "conversation facilitator" for adults sensitive to social rejection.

In a similar fashion, modification of the available resources can help solve irascible problems within the peer group. It is sometimes advisable to temporarily remove the few highly valued and much disputed "cult" objects until their use can be successfully re-negotiated. Or duplicate resources may be needed. Resource modifications can smooth the flow of activity and facilitate harmonious interactions within the classroom community.

Effective use of resources in education settings goes far beyond purchasing the best range and quality. Providing a rich environment for children's learning also means careful arrangement, attractive presentation and logical ordering of those resources. Children also need a carefully considered set of guidelines for using these resources if their natural curiosity, exploratory behavior and problem-solving skills are to be supported.

Conclusion

Creating a learning environment that really supports children's learning and development requires not only a substantial collection of concrete resources and equipment. It requires a great deal of skill and knowledge on the part of the teacher. But more important, such a learning environment calls for a set of dispositions that enable the teacher to be a creative problem solver, a negotiator and a reflective practitioner.

Creating the learning environment is a continual task. Before the children arrive, the teacher devises an environment based on her/his best guesses about the nature of the children, their interests, prior knowledge and needs. Even before the first day is over, however, the teacher will be making modifications, observing, evaluating the worth of the

modification and dreaming up new ones. This cycle of curriculum decision-making has no other beginning or end until the last day of school. When the children move on, the teacher begins a whole new cycle as the primary designer of the learning environment.

References

Bredekamp, S. (Ed.). (1987). *Developmentally appropriate practice in early childhood programs serving children from birth through age eight (rev. ed.).* Washington, DC: National Association for the Education of Young Children.

Bredekamp, S., & Rosegrant, T. (Eds.). (1992). *Reaching potentials: Appropriate curriculum and assessment for young children* (Vol. 1). Washington, DC: National Association for the Education of Young Children.

Blenkin, G. M., & Kelly, A. V. (1987). Education as development. In G. M. Blenkin & A. V. Kelly (Eds.), *Early childhood education: A developmental curriculum* (pp. 1-31). London, UK: Paul Chapman.

Carini, P. F. (1986). Building from children's strengths. *Journal of Education, 168*(3), 13-24.

Cuffaro, H. (1991). A view of materials as the texts of the early childhood curriculum. In B. Spodek & O. N. Saracho (Eds.), *Issues in early childhood curriculum* (pp. 64-85). New York: Teachers College Press.

Day, D. (1983). *Early childhood education: A human ecological approach.* Glenview, IL: Scott Foresman.

Early Childhood Curriculum Committee. (1978). *What do you believe?: A challenge to teaching practices in early childhood education.* Adelaide, SA: Education Department of South Australia.

Elkind, D. (1986). Formal education and early childhood education: An essential difference. *Phi Delta Kappan, 67*, 631-636.

Gandini, L. (1993). Fundamentals of the Reggio Emilia approach to early childhood education. *Young Children, 49*(1), 4-8.

Halliwell, G. (1990). Thinking and talking about the curriculum in school systems: Competing curriculum languages. *Early Child Development and Care, 61*, 35-42.

Kolbe, U. (1991). Planning a visual arts curriculum for children under five years. In S. Wright (Ed.), *The arts in early childhood* (pp. 25-52). Sydney, NSW: Prentice Hall.

McLean, S. V. (1991). *The human encounter: Teachers and children living together in preschools.* London, UK: The Falmer Press.

McLean, S. V., Haas, N., & Butler, B. (in press). Kindergarten curriculum: Enrichment and impoverishment. *Early Child Development and Care.*

Mehrabian, A., & Diamond, S. (1971). Effects of furniture arrangement, props, and personality on social interaction. *Journal of Personality and Social Psychology, 20*(1), 18-30.

Peck, J. T., McCaig, G., & Sapp, M. E. (1988). *Kindergarten policies: What is best for children?* Washington, DC: National Association for the Education of Young Children.

Russell, J. A., & Mehrabian, A. (1978). Approach-avoidance and affiliation as functions of the emotion-eliciting quality of an environment. *Environment and Behavior, 10*(3), 355-387.

Schram, T. (1992). Face-to-face: Stereotypes and the international classroom visitor. *Social Studies and the Young Learner, 5*(2), 19-28.

Torelli, L. (1992). The developmentally designed group care setting: A supportive environment for infants, toddlers, and caregivers. In S. Provence, J. Pawl, & E. Fenichel (Eds.), *The zero to three child care anthology* (pp. 81-84). Arlington, VA: Zero to Three National Center for Clinical Infant Programs.

Walsh, P. (1991). *Early childhood playgrounds: Planning an outside learning environment.* Castle Hill, NSW: Pademelon Press.

Collecting, Compiling, Constructing, Creating

Oralie McAfee

Flip through the pages of the latest full-color learning materials catalog, wander down exhibit aisles at a teacher's conference or watch a demonstration of the latest multimedia resources. Everything you want or need for teaching is on sale, neatly packaged in plastic bags complete with storage rack or in self-storing kits. Total educational systems for the entire school are available.

Are teachers merely adjuncts to prepackaged materials and technology or is there a place for teacher-developed materials? Should teachers collect, compile, construct and create instructional resources and activities for a group of children in a particular school and community setting? The answer, of course, is "Yes!" despite the strong forces that say "It can't be done," and "It shouldn't be done." Commercially distributed textbooks, equipment and technological devices such as calculators, video and audio cassettes, computers and their multimedia complements cannot replace teacher-developed materials and instructional resources. *Both* are important in children's learning.

Education is more than kits, textbooks and technology—it must be grounded in the child's reality, developmental level and uniqueness. Balancing commercial materials with locally relevant resources obtained or made by teachers enables us to:

- Link learning with children's communities and cultures
- Use current best thinking about teaching and learning
- Foster creativity, inventiveness and problem-solving in both teachers and children.

Teacher-Constructed, Locally Relevant Resources

Link Learning with Children's Communities and Cultures

In *The Road from Coorain*, Jill Ker Conway, a well-known historian and the first female president of Smith College, describes her youth in Australia, where formal education was greatly influenced by the British. Her schooling embodied the history, social structure, literature, art and ideals of life and nature in the British Isles. Only as an adult did Conway realize that the Australia she knew—the vast sheep ranches and bush—represented a different environment, a different world view, a different concept of beauty, a different history and different problems and solutions. "The Australian landscape actually formed the ground of my consciousness, shaped what I saw, and influenced the way a scene was organized in my mental imagery" (Conway, 1989, p. 198).

Standard educational materials, developed to reach the largest possible group of consumers, cannot recognize the powerful effect of the natural and cultural environments as can instructional resources developed from within those natural and cultural environments. Children's learning is grounded in their own world, whether it is desert, high plains, mountains, coasts, large industrialized cities or remote rural villages. Recognizing that reality will make us better prepared to help children learn.

By forging a link with a child's community and culture, we accomplish several other things. We build on children's prior knowledge and experience to help them learn—a basic instructional principle. We also acknowledge that all learning takes place in, and is influenced by, the sociocultural milieu. Through social interactions, children learn to believe, feel and act in ways that are consistent with others in the community. Sometimes these behaviors are inconsistent with school expectations. We must communicate respect for the diverse communities and cultures in which children and families live and believe that those communities and families can help children learn, grow and develop.

Teachers must work hard and demonstrate great sensitivity as they reach out to worlds that may be unfamiliar, hostile or indifferent. Teachers can help children of diverse backgrounds share their world in reports and stories and other compositions (Dyson, 1993). Family and community members can become "instructional resources."

Sociocultural dimensions are important in all aspects of learning, including assessment. Children from different sociocultural settings may have "mastered developmentally similar tasks, but their mastery may be displayed in unfamiliar dress" (Bowman, 1992, p. 134). Therefore, performance tasks may need to be embedded in situations that children find familiar and comfortable (McAfee & Leong, 1994). Children even do better on Piagetian tasks when they use materials familiar to them.

Use Current Best Thinking About Teaching and Learning

Children learn best when instruction is connected to real experiences and issues, and when they actively participate in constructing their own knowledge and understanding. Teachers can collect, compile and construct materials that will help them achieve this ideal learning environment.

The National Council of Teachers of Mathematics standards recommends that children have abundant experiences with tangible objects and real-life mathematical problems before they are expected to compute and solve problems in the abstract. Paper and pencil worksheets and computer programs are not enough. "Teachers need to make extensive and thoughtful use of physical materials to foster the learning of abstract ideas" (National Council of Teachers of Mathematics, 1989, p. 17). Objects from everyday life and the natural environment can be used to teach children that many things do not come in neat groupings of units and tens, that geometric shapes do not always fit together and that many materials are difficult to classify.

All over the country, teachers are using their own communities to help children understand the scientific, mathematical, economic and political aspects of environmental pollution and cleanup. While digging into these real life problems is far messier (literally) than discussing possible solutions to a problem laid out in print or video, the experience will be closer to reality. Trash cans on playgrounds or recycling containers in classrooms and cafeterias may not be standard instructional supplies, but they can be powerful teaching tools.

Museum and zoo curators recognize that pictures or exhibits behind glass or on a television screen cannot involve children in the way that "Please touch" and problem-solving, hands-on displays can. Such displays involve children (and adults) through all their senses by offering the opportunity to feel the beaver's fur, compare skull and bone sizes of various animals, use tools and machines and savor representative sounds and smells. Children help plant, cultivate, harvest and store food at "living history" or "heritage" farms and ranches all over the country. As they enter re-creations and reconstructions of government, commerce, industry and factory life of the frontier, industrial age or the Great Depression, learning comes alive. The success of such attractions inspired Walt Disney Co. to plan an historical theme park.

Teachers cannot create Colonial Williamsburg, a Native American village, a company town, an Acadian farm community or even a children's museum, but they can use items that engage and involve children through as many senses as possible. Touching, smelling,

manipulating, exploring, investigating, using, playing, singing and dancing are paths to learning that are as legitimate as seeing and listening. These paths can be made available to all children, unlike the privilege of going to museums and living history sites.

Foster Creativity, Inventiveness and Problem-Solving in Children and Teachers

Teaching and learning materials should support and encourage children's and teachers' creativity, inventiveness and problem-solving. Children do not need exact replicas; items that possess the suggestion of essential attributes found in real life may suffice. Provide some materials and a suggestion or two, and most children will fill the gap with flair and imagination. After studying the life of George Washington Carver, 2nd-graders re-created key scenes from his life using readily available school and home materials and large portions of inventiveness.

By combining natural materials (feathers, seashells, rocks, seeds, leaves, nuts, cones, plants, sand, clay, bird nests, appropriate foods, etc.) with natural outdoor environments, children can develop and retain respect and awe for the natural world. Even city pigeons and starlings have beautiful feathers that are differentiated by the function they serve. One child sorted a wide variety of seashells into two piles: flat clam-type shells and spiral pointed shells such as snails, olives and periwinkles. Lacking names, she called the clam-type group "butterflies," and the spirals "horns." Perfect!

Adults who make the effort to collect or construct materials in order to give life and form to a lesson will never be the same. Teachers gain a feeling of efficacy and satisfaction that is empowering. Watch parents at a "make and take" workshop brim with enthusiasm, excitement and satisfaction. Making things specifically for this child, or this group, seems to unleash unexpected ideas and insights. Also, the end results have greater meaning for children and adults. A book you make is more than a book—especially if it is specifically designed for a particular child, family or classroom. Most people today need to be reminded that we do not have to buy everything. Indeed, the most important things *cannot* be bought.

Guides for Teachers

Neither purchased nor teacher-constructed and -compiled material is inherently superior. No one would advocate that teachers ignore the many excellent instructional materials and kits that may be purchased. Teachers must, however, use these items in appropriate ways. Overly convergent questions and discussion topics should be modified to promote critical thinking and problem solving and to relate to the children's experiences. Take kits apart and use the materials in ways that may be more appropriate to a given group of children. For example, items may be used in learning centers or cooperative learning groups rather than with the entire group. If you do not like the elaborate "color, cut and paste" patterns for puppets, discard them. Instead, take the essence of the idea or activity but apply it in a creative and appropriate way that reflects and uses children's own experiences.

As you consider whether to use commercial or teacher-developed materials, keep in mind the following guidelines: safety, durability, cost, developmental appropriateness, conceptual correctness and respect for all cultures, ethnic groups and environments.

Safety

Consider each item for safety. Inexpensive pine blocks will splinter whether they are purchased or constructed. Improperly designed and constructed outdoor equipment can be dangerous, regardless of how lovingly the piece was made.

Durability

Flimsy materials seem to encourage destructive use and should be avoided. Many items

made of oaktag or cardboard are hardly worth the time to make them. Teacher- or parent-made flannel board pieces, however, are likely to remain in perfect condition long after commercial sets have lost arms, legs, tails and other appendages. (Trace or draw the desired item, cut two layers out of felt, sew or glue the layers together and draw on distinguishing characteristics with a felt pen and the set will last indefinitely.) Protect oaktag, poster board or paper materials with lamination or by covering them with clear contact paper. Slip teacher- or child-developed book pages into clear zip-shut plastic bags or 8 1/2" x 11" acetate protectors. Sew or tie the plastic pages together or put the acetate protectors into a theme binder. These books will survive the loving and repeated reading they will certainly get. Incidentally, short thematic books incorporating pictures of children's classroom and field trip activities are far more functional than a bulging scrapbook that tries to record everything a group does.

Cost

In comparing costs, consider the projected life of the materials, relative effectiveness and appropriateness, the number of children who will be using the product (some materials last many years) and your time, as well as the initial outlay. Teachers working in teams, or a whole school pooling its efforts, can reduce the effort required of an individual teacher. Consider, too, the intangible aspects: the satisfaction of using something that you have made, the value of something that is "just right" for a particular child or group, and the relevance of materials that truly reflect the community and culture.

Developmental Appropriateness

Teacher-made materials tend to be of paper, cardboard, pictures, letters and numbers that may be too abstract and flimsy for children's use. Worksheets and dittos are still worksheets and dittos whether they are purchased or made by the teacher. Consider the age, development, abilities and interests of the children. Many "just right" items can be easily made or collected for young children: yarn balls; sound or smell cans; carpet sample swatches for ordering, classifying and arranging; cloth pieces that use various types of fasteners (buttons, metal grips, ties, snaps, hook and eye and hook and loop). Older children will still need "things" to work with that can augment the abstract computations and problems in their classwork.

Legends, myths, stories or poems from different cultures should be evaluated for appropriateness before use with a particular group of children. The work of art must not be misrepresented, nor the children misled. In our rush to bring such literature to children, we must be sure that we are not presenting it too early. Just as Robert Frost's poetry and a book such as "The Giving Tree" (Silverstein, 1964) cannot be fully comprehended by young children, neither can many works of literature from various cultures.

Conceptual Correctness

Apply the same rigorous tests of accuracy and correctness to all materials—whether teacher-made or purchased. Items we construct should accurately convey the ideas we are trying to teach, presenting concepts and processes accurately and clearly. Thoroughly understand the concepts before you begin to avoid constructing a classification game that misclassifies animals or plants or inadvertently conveys the idea that a square is not a rectangle. Directions should be clear and reflect current best thinking about how to talk with children, including: giving hints and clues to scaffold children's learning, helping them solve problems, naming objects and relationships, giving alternatives to "test" questions and asking open-ended questions.

Respectful and Reflective of the Community, Culture and Environment

Materials that teachers collect, compile or construct to reflect the community in which they

teach must be respectful of all cultural and ethnic groups. Check with parents and community representatives before proceeding. Current efforts to incorporate multicultural materials into the curriculum have led to such activities as sand painting. Sand painting is a solemn healing ritual, however, in some, but not all, Native American tribes. All people object to the trivialization of their rituals and holy days, and we must examine our practices from that respect. Educators in Oklahoma and Minnesota worked closly with tribal elders, parents, grandparents and other community groups to create puzzles, art projects and science activities using local and traditional materials, and to develop ways to honor historical and present-day leaders (Sears & Medearis, 1993; Novelli, 1990). Others have collected and compiled playways, playthings, games, rhymes and children's amusements from cultures and regions around the world (Sutton-Smith, 1972; Vinton, 1970).

Commercial products designed to reflect ethnnic diversity may be too neutral or too far removed from children's experience to have meaning. To create authentic materials, save pictures from local, regional or ethnic magazines. I developed a theme of "Farm Occupations" as appropriate to the rural community in which I taught. I remembered that Jimmy's father was a sheepherder and shearer and requested his assistance. He sent me a fleece and a large picture of himself on the front of a regional farm magazine. That picture, made into a poster and laminated, held a place of honor in our classroom that year—and I still have it! As an alternative, take your own local pictures and make posters from them. One or two posters a year quickly grows into a substantial file on "Our Community." Construct lotto games or books on local themes ("Buildings in Our Neighborhood," "People in Our School," "Vehicles We See"), fairs, rodeos, parades or other local celebrations. Teachers or parents with access to cameras or camcorders can make locally oriented audiovisual materials on almost any theme.

As more sophisticated and technical commercial educational materials become available, teachers might easily overlook the value of resources they, their colleagues and the community compile, collect, construct or create. Such resources embody educational, personal, cultural and community values that can be realized in no other way.

References

Bowman, B. T. (1992). Reaching potentials of minority children through developmentally and culturally appropriate programs. In S. Bredekamp & T. Rosegrant (Eds.), *Reaching potentials: Appropriate curriculum and assessment for young children* (pp. 128-136). Washington, DC: National Association for the Education of Young Children.

Conway, J. K. (1989). *The road from Coorain.* New York: Knopf.

Dyson, A. H. (1993). *Whistle for Willie, lost puppies, and cartoon dogs: The sociocultural dimensions of young children's composing.* Berkeley, CA: National Center for the Study of Writing and Literacy.

McAfee, O., & Leong, D. (1994). *Assessing and guiding young children's development and learning.* Boston: Allyn & Bacon.

National Council of Teachers of Mathematics. (1989). *Curriculum and evaluation standards for school mathematics.* Reston, VA: Author.

Novelli, J. (1990). Culture meets curriculum. *Instructor, 99*(8), 31-34.

Sears, N. C., & Medearis, L. L. (1993). *Educating teachers for family involvement with young Native Americans.* Unpublished manuscript, East Central University, Ada, OK.

Silverstein, S. (1964). *The giving tree.* New York: Harper & Row.

Sutton-Smith, B. (1972). *The folkgames of children.* Austin, TX: University of Texas Press.

Vinton, I. (1970). *The folkways omnibus of children's games.* Harrisburg, PA: The Stackpole Company.

Some Considerations in Equipping a Child Care Center or School

E. Anne Eddowes

Equipping a new child care/educational center or adding to the equipment in an existing facility can be an exciting challenge. Several factors must be considered, however, before making any purchase, including: characteristics of the center/school, design of the physical space, safety and health considerations, specific provisions for children with special needs and budgetary limitations. In addition, some thought should be given to ensure that the center or school reflects the culture and backgrounds of the children served. With some careful planning, the selection process can be manageable and appropriate equipment can become an integral part of the program.

Characteristics of Center/School

The type of facility and the program must be considered. Is it a child care center serving infants, toddlers and/or preschool children? Is it a small private school or a new public elementary school? How many children are served and in what age range? How much time will children be spending there daily?

Preschool programs may be operated from 2 to 12 hours each day—sometimes even 24 hours. Most elementary school programs function for 7 or 8 hours per weekday. Small centers may serve as few as 10 children. In contrast, a large elementary may enroll over 1,000 students. The children may be grouped by age/grade, or the program may focus on a vertical or "family" grouping arrangement.

Equipment selection should follow identification of appropriate program goals that are based on the needs of both the children and staff. The children's needs will reflect their developing competence. Too often, program administrators assume that individual children have already had certain specific past experiences. Equipment should provide for a range of interesting activities that will meet the needs of all the children in the group.

Facilities should be equipped with versatile process-oriented equipment such as that used in socio-dramatic play, block-building, gardening, cooking, woodworking, sand or water play, language experience, discovery in math/science and creative arts (see Part 2). With a balance of equipment, staff can meet the socio-emotional, physical, cognitive, language and creative needs of children.

When possible, the staff members who will use the equipment should be involved in the selection process. They will know what materials will be most helpful to them in implementing the daily activities. If this involvement is not possible, preservice or inservice training is of critical importance. Staff members must be able to identify both the availability of the equipment and its planned use. The finest equipment in the world will remain unused if its existence is unknown or if staff members do not understand how its use will assist in meeting program goals.

Design of the Physical Space

Determine what kind of space is necessary and available in which to use and store the equipment. In some areas, specific licensing requirements regulate both indoor and outdoor space in child care facilities or schools. Fencing may be necessary. Centers and schools in areas

where poor weather conditions prevail will need space inside for large-muscle activities. In good weather many "indoor" activities can be moved outside, but an area with shade should be provided. To make best use of this option, equipment should be easily transported.

The total environment must be considered from a child's point of view when planning the use of space (i.e., ceilings, walls, floors, windows, fences, plants, pathways). Kritchevsky, Prescott and Walling (1969) suggest both play units and potential units. Play units can be simple, complex or super. A simple unit has one obvious use with no sub-parts. Complex units contain sub-parts and include two essentially different play materials that allow the child to manipulate or improvise. Super units contain three or more play materials (e.g., hollow blocks, boards, unit blocks, vehicles, work hats). A potential unit is an empty space or table to which play materials may be added.

The entire area should be both pleasant and functional; a well-designed space can enhance the educational program. Strategically placed low shelves or dividers and moveable tables/chairs or desks can create interest areas and also define traffic patterns. Active areas, both indoors and outdoors, require ample space and need to be separated from those areas in which quieter, more sedentary activities take place (Vergeront, 1987, 1988). Space for a computer station and other audio-visual equipment should also be allocated.

The amount of available storage space is a crucial factor. Some materials will need to be accessible for daily independent use by the children. Extra equipment will need to be stored for rotation, special projects or regular use outdoors. A lack of storage space may be overcome by installing shelves that can be covered inexpensively with cloth curtains or bamboo shades. Also, equipment that can be used for several purposes may be helpful (i.e., sand/water table, plastic stacking blocks that can double as chairs, a dramatic play area that can have a multipurpose focus).

When facilities are shared, additional concerns arise. Some child care centers are housed in churches or community centers and some schools are used for recreational or extended care purposes after school hours. Coordination between two staffs becomes necessary in order to know what equipment/materials must be stored and what can be shared. Sometimes the physical environment must be changed to meet the needs of a different program.

Safety and Health

Safety is a continuing concern in selecting equipment. Materials should not have sharp edges or protruding parts. Wood pieces must be free from splinters. All equipment should be durable and easily maintained. Remember to take into consideration the age of the children using the equipment. Infants need equipment that is non-toxic and has no small pieces. Older elementary age children can usually handle more complex and fragile equipment, such as a microscope with glass slides.

Keeping the equipment clean is also crucial. Toys for young children must be regularly sanitized. Tables/desks and other flat surfaces should be of a non-porous substance to facilitate cleaning. Doll and dress-up clothes need to be washable. Some items that are handled often, such as cards, pictures and games, can be laminated for easy wiping. Floor coverings should include both carpeted and tile surfaces and a vacuum cleaner is indispensable.

Another concern that should be addressed when selecting equipment is the amount of supervision necessary in its use. Children are usually supervised to a certain degree in any program. Some activities, however, may need more adult supervision than others (i.e., woodworking, cooking, some science activities). Consider equipment's use/arrangement in relationship to the level of supervision required to prevent misuse or accidents.

Providing for Exceptionality

As more and more children with special needs are being included in regular classrooms, additional equipment may become necessary. In the past few years, new equipment has

become available that can help individualize programs for these children. Regular classroom equipment can often be used if slightly modified or if additional help is provided. The type of disability and level of severity should be known before equipment can be selected or used.

Dolinar, Boser and Holm (1994) suggest consideration of the following questions before selecting equipment:

- Who will use this space?
- What are their needs?
- How can those needs be met in this particular setting?
- What are the goals and objectives of the program?

Inclusion of special needs children in regular classrooms will require more open, physical settings that can accommodate wheelchairs. Learning centers can be used to provide a range of activities for all students in the class. Use of concrete materials and "hands-on" experiences will be necessary to meet a range of developmental needs (Safford, 1989).

Balance and the Budget

The most important budgetary consideration is the development of a comprehensive plan that can provide guidelines over time and a balance of equipment within each area. It is necessary to decide which pieces of equipment have first priority and which ones will be added in future years.

Not all equipment must be purchased. Many items can be constructed by staff members, parents or volunteers. Community civic groups, high school shop classes and university architecture students might be able to provide valuable assistance. Some books provide plans and directions for making inside and outside equipment (Eddowes, 1993; Linderman, 1979; Redleaf, 1987). Donations of expendables such as magazines, milk bottle caps or materials scraps may be used to make some pieces of equipment. After the initial needs of the program have been determined, the equipment list should be reviewed to determine if any items can be constructed. Even under the most affluent of conditions, homemade equipment can provide interesting models for creativity.

Although homemade equipment is important, it is wise to ensure that quality is maintained. All equipment must be durable. In some instances, purchased equipment may be better even if it seems easy to build. For example, although unit blocks may seem simple to construct, it is probably better (albeit more expensive) to purchase precision-cut and finished hardwood blocks that will be less likely to splinter, dent or split.

Equipment allocations should not be used all at one time. Some funds should be saved to use later in the year. Groups of children and interests within those groups will vary. Centers and schools should be able to respond to those variances by adding new pieces and buying newly marketed items.

Reflecting Culture

Even when programs are similar, classrooms must reflect the individuality of the children and adults who spend much of their time there. In the quest for equipment to meet program goals, it is easy to overlook cultural needs. Pictures, wall hangings, dolls, dress-up clothes, books, maps, "people color" crayons and paints are materials that may relate to the cultural or ethnic backgrounds of the participants. Finally, materials and equipment should also reflect other cultures in the region, the country and the world, as well as the local cultures.

In Summary

Equipment selection for any program requires careful planning. The responsibility should be shared by administrators and staff who recognize the needs of both children and adults.

Consideration should be given to program goals, availability of space, safety and health, exceptionality, budgetary concerns and cultural balance. The time spent in planning will be rewarded by the successful implementation of programs.

References

Eddowes, E. A. (1993). *Bright ideas, handmade toys: Caring for infants and toddlers.* Little Rock, AR: Southern Early Childhood Association.

Dolinar, K., Boser, C., & Holm, E. (1994). *Learning through play: Curriculum and activities for the inclusive classroom.* Albany, NY: Delmar.

Kritchevsky, S., Prescott, E., & Walling, L. (1969). *Planning environments for young children: Physical space.* Washington, DC: National Association for the Education of Young Children.

Linderman, C. E. (1979). *Teachables from trashables: Homemade toys that teach.* St. Paul, MN: Redleaf Press.

Readleaf, R. (1987). *Teachables II: Homemade toys that teach.* St. Paul, MN: Redleaf Press.

Safford, P. L. (1989). *Integrated teaching in early childhood: Starting in the mainstream.* White Plains, NY: Longman.

Vergeront, J. (1987). *Places and spaces for preschool and primary (indoors).* Washington, DC: National Association for the Education of Young Children.

Vergeront, J. (1988). *Places and spaces for preschool and primary (outdoors).* Washington, DC: National Association for the Education of Young Children.

Children and Technology

Joan P. Isenberg and Teresa Rosegrant

Technology has become is an integral and accessible part of children's culture. As a result, educators must be prepared to optimize the microcomputer's fullest potential in order to ensure children's success as learners.

In terms of technology, teachers and other adults interacting with children should take roles of facilitator, observer and guide of children's learning. Many teachers will need to shift from being the center of knowledge to being an orchestrator of learning. A technological learning climate should be positive and stimulating, including daily opportunities for children to engage in a variety of hands-on, multimedia activities during which they are free to take risks as they learn (Butzin, 1992). In the absence of this kind of environment, educators "will be using only a fraction of the power of current and forthcoming technologies" (Association for Supervision and Curriculum Development [ASCD], 1993, p. 4).

This article focuses on key technological changes that potentially improve the computer's impact upon children's learning. It also explores four dimensions that are unique to computers as a learning tool.

Technological Changes

Within the past decade, three major changes have contributed to an increased use of technology with children. First, information can now be obtained in fundamentally different ways from the past (ASCD, 1993). Multimedia has replaced books and texts as sole sources of information. Children's access to information is instantaneous with a mouse, a track ball and/or CD-ROM. It is not uncommon for children to use CD-ROM technology before ever using a book.

Second, vast technological improvements have made the unique attributes of the computer more available to children. Today's software contains significantly more sophisticated color, animation, video and music clips, digitized speech, interactivity, fantasy and creativity than earlier generations. Animated children's literature, written by the most respected children's authors, creates an interactive language-learning experience—often in more than one language. At one level, such software enables children to listen to a story, hear the sentences repeated and see words and phrases highlighted. At another level, children using the software can read several books by a single author, thereby becoming familiar with that author's writing style, character, setting and plot development (Wepner, 1993).

And third, the supply of good software is greater than ever before. More than 535 software publishers are currently developing software for children, according to the Software Publishers Association. As more technology becomes available, educators must remember that "it is not mere volume of computer use that creates the conditions for exemplary practices to arise, but the culture in which that use is embedded" (Center for Social Organization of Schools cited in Marcus, 1992).

Teaching and learning with technology is easier and more effective as a result of these changes.

Children can now take more responsibility for their own learning and the curriculum opportunities become infinite. Yet, these very same technological advances require teachers to make more difficult decisions. Teachers have more software to choose from, more management issues to address and a wider array of assessment tools to use. Unless teachers understand how to put this powerful technology to its best use, children could be lost in a confusion of electronic information without acquiring key concepts and understandings. Therefore, the remainder of this article focuses on the inherent power of technology. The authors discuss four technical dimensions of the computer—patience, feedback, multiple modalities and efficiency (Butzin, 1992)—that make using it advantageous. These essential aspects of microcomputers undergird the selection and use of educational software for the classroom or home.

Essential Technical Dimensions

Patience

The microcomputer is essentially patient. The machine can remain in a "wait-state" or repeat functions without making any judgment about the interval of time or number of repetitions. The learner can take as much time as needed without ever sensing impatience or criticism. This patience is pleasantly surprising in light of the technology's interactive capabilities.

The computer does not impose on the learner. Rather, it is capable of accommodating the needs of individual learners. A child can spell something wrong several times and each time the program provides the correct spelling. By simply providing the correct spelling, it teaches without communicating a sense of failure. Any affect within the interaction must be deliberately programmed into an otherwise neutral context.

Patience is an important advantage of computer-assisted learning within a computer context because it affords the child important "thinking space." A child who is not worried about a waiting and evaluating adult is psychologically freer to explore alternative strategies or refine specific skills. This freedom also strengthens a child's ability to concentrate on the task at hand. Time passes more quickly and learners actually devote more time to an educational task than they realize. This "absorbing interaction" is a common response to computer use, unless the learner is troubled by the affective domain imposed by the software or by time restrictions on computer use.

It is important to select software that maintains this sense of patience. And children must have frequent and lengthy sessions on the computer in order to fully benefit from computer learning.

Feedback

Microcomputers can respond immediately to the learners' efforts. This response can acknowledge a correct answer or give feedback that provides assistance. Four types of feedback are frequently used: template matching, models, demonstrations and simulations. Although the nature of the feedback is somewhat different in each case, the computer always provides data that the child can use to evaluate and modify fundamental understandings or hypotheses.

Template matching is the most common form of feedback. The machine looks for the correct response and informs the learner if she/he is correct or incorrect. This feedback should not upset the learner if the computer's integral sense of patience is maintained. After numerous trials over multiple sessions, this simple form of feedback can help children master many skills. For example, in *Bailey's Book House* (Edmark, 1993) on "The Letter Machine" the child can explore letters, pictures and text or select the question-and-answer mode. In the question-and-answer mode, Tabatha the giraffe asks the child to type a specific letter. If the child selects an incorrect match, the giraffe pronounces the selected letter and again asks the child to find the requested letter. After three trials, if the correct match has not yet been made,

the full keyboard is simplified to show only the row containing the requested letter. If the child still cannot provide the correct match, all the letters disappear from the keyboard except the requested one.

The microcomputer can also provide models in order to assist a learner. A model offers the learner an expanded sense of possible outcomes. By using program elements in various combinations, a child can develop a better sense of how these elements might combine to create new outcomes. In *Thinkin' Things* (Edmark, 1993), "The Flying Shapes" and "The Flying Spheres"contain models that provide children with "ideas" in order to help them imagine or develop a sense of how movement, shape, sound and color can be combined.

If a learner truly does not understand the process used to solve or construct a solution, the computer can demonstrate one. *Demonstrations* can isolate the steps, features or operations necessary to successfully complete a task. If, for instance, a child is learning to count and skips several items on the screen, the computer can demonstrate the counting of each item by moving it while displaying and announcing the number. Operations can be demonstrated as often as needed through graphics and animation. As multimedia technology advances, videotaped demonstrations will increasingly be incorporated into CD programs. This development will make demonstrations in the arts and sciences more realistic and accurate.

Simulation can provide learners with realistic feedback in real time. In a simulation, the learner sees the consequences of a decision as it occurs. The computer can take the role of another player (e.g., chess partner) or create a context for the simulation (e.g., a flight simulator cockpit). As the video capacity of computer technology becomes more realistic, simulation may be a more likely way for students to practice many laboratory or field-oriented tasks while striving for some degree of mastery. Simulation allows the learner to experiment without harmful consequences. In the fight simulator, one can literally survive a crash and learn from the mistakes that caused it.

Multiple Modalities

Learning can occur in visual, auditory and kinesthetic modalities (Dunn, 1981). The microcomputer operates on all three levels through its visual displays from the screen and printer, sounds from digitized and recorded speech and the motor requirements of input devices such as keyboard and mouse. Although previous generations of microcomputers had serious quality limitations, all three of these modes are dramatically improved in the new multimedia machines.

Multimedia technology enables children to select and mix modalities with ease according to their needs as learners (Braukmann, 1993). Technical improvements in sound, graphics and input are complemented by the increased speed of newer microprocessors and the superior random access memory (RAM) available with CD-ROM. Learners have control over when to use these modalities and in what combinations. Therefore, learning styles or dispositions can be more readily accommodated when using a microcomputer. Continued advances and video-imaging improve the education potential of microcomputers and make a wider range of users possible.

An example of a multi-modality learning environment is found in programs like *The San Diego Zoo Presents . . . The Animals*, by Software Toolworks, Inc. This CD-ROM program enables users to "visit" the zoo through habitats called biomes. They can see and hear animals, view video clips, look at maps, watch narrated videotapes and read text in endless combinations. While guided tours are available, learners can also create their own personal tours. Media libraries and related texts can be found through "Explore Text Links or Explore A/V Links." When the learner wishes to keep information, the text can be clipped and saved to a disk for later use.

Video images and sound give the learner a realistic portrayal of animals and personnel at the zoo. When children are particularly interested in a picture, they can explore related text

or see an additional story. Multimedia technology enables children to explore and investigate information in various learning forms. Many learning styles are easily accommodated within this technology.

Efficiency

The primary reason for using microcomputers is efficiency. Many computer tool programs make certain tasks easier, such as writing with a word processor, tracking accounts with a spreadsheet, organizing data in a database, planning with a calendar, communicating with a modem, figuring with a calculator and editing a newsletter with a publishing program. Such programs allow children to perform difficult tasks in an exploratory and forgiving environment. Children can construct and organize information and then use print and graphic displays to better communicate their meanings. As the information superhighway develops, school boundaries will be increasingly transparent and a child's learning community could potentially include children from other parts of the country and even the world.

Learners can take advantage of many shorthand ways of doing things in the communicative arts. Word processing and desktop publishing programs can help children to enter a new world of published print. Word processing functions that delete, copy or move text encourage editing. Different font sizes and styles, as well as column options, give children creative opportunities to make books, newsletters and newspapers. The learner acquires a broadened literary experience and a better defined sense of authorship.

Conclusion

Technology can provide opportunities for all children regardless of age, gender, ability levels or socio-economic status. For the power of technology to benefit all children, however, the software must be aligned with the four technical dimensions inherent in the computer. If not properly aligned, it is possible to misinterpret the microcomputer's role, reducing its power as a learning tool. In that case, we would have no real reason to use this expensive technology with children. If we do use its power well, we empower children to find their own way to best meet their learning needs. We also empower educators with an extraordinary means for individualization.

References

Association for Supervision and Curriculum Development. (1993). Using technology to support "authentic learning." *Update, 35*(8), 1-5.

Braukmann, J. R. (1993). Designing technology education activities for elementary students. *The Technology Teacher*, May/June, 23-26.

Butzin, S. M. (1992). Integrating technology into the classroom: Lessons from the Project CHILD Experience. *Phi Delta Kappan, 74*(4), 330-333.

Dunn, R. (1981). A learning style primer. *Principal, 60*, 31-34.

Marcus, S. (1992). Computers, composing, and the productivity paradox. *The Quarterly of the National Writing Project and the Center for the Study of Writing, 14*(4), 13-15.

Wepner, S. B. (1993). Technology links to literacy: Technology and author studies. *The Reading Teacher, 46*(7), 616-619.

Software Cited

Bailey's Book House. (1993). Redmond, WA: Edmark Corp.

The San Diego Zoo Presents . . . The Animals! (1992). Novato, CA: The Software Toolworks.

Thinkin' Things. (1993). Redmond, WA: Edmark Corp.

Guidelines for Software Evaluation and Use

Software assessment occurs at two different times in the curriculum. First, teachers frequently review a piece of software *without* children to determine its appropriateness in their curriculum. Second, teachers *observe* children using a piece of software to determine its appropriateness for those particular children. The following evaluation can be used in either context. Teachers must consider each of the following four features for each piece of software used in the curriculum.

Technical Features

A. Are common function keys (i.e., delete, return) used appropriately?
B. Does the interface make sense to the learner? (How do they get started? How do they exit? How do they move about the program?)
C. Can learners' work be saved, printed or kept in a record?

Learning Features

A. What modalities are used to assist or support the learner (i.e., visual, auditory, tactile)?
B. Can the learner control the pace/rate of the activity within the program (i.e., faster/slower)?
C. What types and methods of feedback are used (i.e., repeats, cue, clue, corrects, negates)?

Content Features

A. Are the activities helping the child learn new content, processes or skills?
B. Does the learner have access to levels of difficulty within the content, processes or skills?
C. Does the learner have a means for exploring new information before being asked to use it?

Developmentally Appropriate Features

A. Are the content, skills or processes appropriate to the age range suggested by the developer?
B. Does the program enable children to be playful or construct elements on their own (e.g., draw pictures, move characters, fantasize, compare tunes, create stories)?
C. Does the program provide a range of activities that differ in terms of degree of complexity or expertise (e.g., does a mathematics program incorporate activities that include one-to-one correspondence, estimation, simple addition, regrouping)?

Part Two

Suggested Educational Equipment and Materials

Infant/Toddler Groups
Kathleen Ralph

Preschool Groups
Qiuping Cao and Betsy Mercado

Kindergarten Groups
Carol Sue Marshall and Paula Weaver-Blackshear

Early Elementary Groups
Mary Lu Syllaba

Later Elementary Groups
E. Elizabeth Pate

Middle School Groups
Ruth Frederick

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SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

An Infant/Toddler Group

6-8 CHILDREN—AGES 0-3

Kathleen Ralph

Infancy/Early Childhood Committee Chairperson, James Hoot

	INTRODUCTION
I	BASIC ENVIRONMENTAL EQUIPMENT
II	HOUSEKEEPING EQUIPMENT AND SUPPLIES
III	HEALTH AND SAFETY
IV	GROSS MOTOR (INDOOR/ OUTDOOR)
V	MANIPULATIVES
VI	SENSORY PERCEPTION
VII	COGNITIVE
VIII	CREATIVE
IX	COMMUNICATION
X	RECORD KEEPING

Infancy and toddlerhood is a period of rapid growth in all developmental areas. Physically, children are discovering what their bodies can do. Language is developing at a phenomenal pace and children are building social and emotional competencies as they interact with peers under the guidance of caregivers. Equipment and materials for infants and toddlers must be appropriate for a wide range of developmental ages and provide for the enhancement of all developmental areas. Torelli (1992) writes that a developmental environment facilitates age appropriate and child-directed learning. The needs of a relatively immobile 1-month-old infant are significantly different from the needs of an active toddler.

Infants need learning opportunities that encourage touching, seeing, hearing and moving (Torelli, 1992). Toddler environments, on the other hand, are created to encourage independence and active exploration. Designing play spaces for children from birth to age 3 requires balancing health and safety concerns with the need to explore in a warm and comfortable environment.

Indoor and outdoor environments should encourage exploration by infants and toddlers as they use their senses and their rapidly changing physical and cognitive skills. Low shelves, carpeted platforms, large floor pillows and open areas for large muscle action allow infants and toddlers to select equipment, materials and activities of their choice. A quiet space in which to be alone, or a place to observe the adults and other children in the room, provides a change of pace for children needing a respite.

Appropriate manipulatives range from mobiles and infant gyms to puzzles and soft building blocks. Language skills can be promoted by materials that encourage children to listen and communicate with other children and adults. Dramatic play props, puppets, audiotapes, pictures and books encourage conversations. Sensory exploration may hold the key to creativity. Activities using non-toxic art media can be planned to allow infants and toddlers opportunities to explore with their senses—without conflicting with a caregiver's desire to eliminate unnecessary "messes." Music and movement are also natural elements of the infant-toddler environment. They can be readily incorporated into the daily schedule and are of high interest to children and caregivers alike.

Health and safety issues are critically important when selecting and maintaining appro-

priate equipment and materials. Considering the rapid spread of contagious diseases in infant and toddler care settings, ease of sanitation becomes a priority. Health-promoting routines in diaper changing, feeding and cleaning need to be readily established to optimize the amount of time caregivers spend interacting with children. In group settings, caregivers must assume that infants and toddlers will explore the environment by tasting and touching. Safety considerations include making sure that equipment and materials are non-toxic, free of sharp edges and free of small parts that could easily be swallowed. Large equipment should protect, rather than restrict, young infants, support the unsteady wanderings of crawlers and beginning walkers, and encourage safe exploration by toddlers.

Infant and toddler environments must convey a sense of warmth and comfort. Equipment should be scaled to the infants and toddlers, yet still invite adults to sit and play on the floor. Floor coverings that are soft and easy to maintain are critical. Rocking chairs and soft chairs or floor pillows can meet infants' and toddlers' need for individual time with an adult. Changing areas and adult storage areas need to be planned with consideration for health and safety, as well as the comfort of the adults.

A balance is likewise sought in planning environments that encourage exploration, yet guard against overstimulation. Infants and toddlers can be overwhelmed by too many choices. On the other hand, they can be bored when the same materials are presented day after day. Rotating equipment and materials maintains the interest of both children and caregivers. The "old" toy that is reintroduced to a child can be experienced in a new way that stimulates ever increasing knowledge and abilities.

Finally, equipment and materials should be selected to promote diversity. Books, pictures, music, art and dramatic play props should reflect diversity of culture, ethnicity, gender, age and special needs—regardless of the makeup of the adults and children in the setting. The use of materials and equipment by caregivers should also be heavily influenced by the children's individual needs. Developmental appropriateness reflects a regard for both a child's developmental stage and a child's individuality.

Reference

Torelli, L. (1992). The developmentally designed group care setting: A supportive environment for infants, toddlers, and caregivers. In S. Provence, J. Pawl, & E. Fenichel (Eds.), *The zero to three child care anthology*. Arlington, VA: National Center for Clinical Infant Programs.

Suggested Order of Acquisition

Essential Items—A

SUGGESTED ITEMS	QUANTITIES A	B
1 BASIC ENVIRONMENTAL EQUIPMENT		
Box, wooden or plastic on rollers with handles		1
Bulletin boards, staff and parent	2	
Cabinet, closed and locking for storing adult supplies out of children's reach, such as first aid or cleaning supplies	1	
Carpet or other resilient floor covering	X	
Chairs:		
Adult-sized:		
Comfortable	1	
Rocking	2	

Extensions—B

SUGGESTED ITEMS	QUANTITIES A	B
Child-sized:		
High	3	
Rocking	1	
Stackable	6	
Clock, wall hung	1	
Clothes rack for drying clothes		1
Cots or mats for resting	4	
Cribs, one per infant	X	
Cubbies or tubs for personal belongings	8	
Cushions, washable, plastic	4	1
Dishwasher	1	
Electrical outlet covers, as needed	X	
Feeding and play table	1	
File cabinet	1	
Front pack, for carrying young infant	1	1

SUGGESTED ITEMS	QUANTITIES A	B
Hamper for soiled clothes (See Health Materials)		
Infant bounce seat (floor model, not mobile)	1	
Infant stroller	1	1
Infant swing	2	
Microwave oven		1
Mirror, unbreakable:		
Horizontally mounted at floor level	1	
Vertically mounted at child's eye level	1	
Photocopier, access to	X	
Playpen or similar structure to allow young infants protection from and visual access to older infants and toddlers	1	
Portacrib	2	
Refrigerator	1	
Safety gate	1	
Screens, low sturdy folding panels for use as area dividers	2	
Serving cart	1	
Shelves:		
High, closed for toys and supplies not in use	1	
Low, open, for children's toys and supplies	2	
Storage bins on rollers for outdoor toys	1	
Tables:		
Changing table at adult height	1	
Adult height for food preparation	1	
Child height	2	
Toilet facilities:		
Dressing table	1	
Sink, tub, or plastic tub for bathing	2	
Lavatories	2	
Toilet seat	1	
Training chairs	3	
Tote tubs for play materials	6	4
Trash cans, covered	2	
Vacuum cleaner	1	
Washer and dryer	1	
Wastebaskets, covered	3	
Window coverings as needed	X	
Work station on wheels, for adults	1	
II HOUSEKEEPING EQUIPMENT AND SUPPLIES		
Brooms:		
Adult size, straight & push, one each	2	
Child size, straight	2	
Brushes:		
Bottle	2	2
Counter	1	
Hand	2	
Cleaners, scouring powders, cans	3	
Dishpan	2	
Dishtowels	6	3
Dishwasher (See Basic Environmental Equipment)		
Disinfectants, bottles, replace as needed	X	X
Dustcloths, replace as needed	X	X
Dust mop	2	
Hand held portable vacuum	1	
Heating and serving dishes	4	2
Soap, liquid hand and dishwasher, as needed	X	X
Sponges	3	
Towels, paper, case of 3,000	2	

SUGGESTED ITEMS	QUANTITIES A	B
Trays	4	
Vacuum cleaner (See Basic Environmental Equipment)		
Washer and dryer (See Basic Environmental Equipment)		
Wastebaskets (See Basic Environmental Equipment)		
III HEALTH AND SAFETY MATERIALS		
First aid and toilet supplies:		
Bandages, adhesive, boxes	2	
Butterfly bandages, boxes	1	
Calamine lotion	1	
Cotton, sterilized, boxes	2	
Cotton tip swabs, boxes	4	
Eye bath	1	
Gauze, sterilized, boxes	2	
Gauze, sterilized, pads	2	
Gloves, disposable	X	
Ice pack	2	
Lotion, nonallergenic	3	
Medicine dropper	1	
Nonallergenic adhesive tape, rolls	2	
Paper towels, package	25	
Petroleum jelly	3	
Powder, talcum, cans	8	
Ointment, antiseptic	1	
Red Cross first aid manual	1	
Rubbing alcohol	1	
Scissors	1	
Soap, antiseptic	3	
Temperature strips	X	
Tissue:		
Facial	18	
Toilet	25	
Tweezers	1	
Food service:		
Bibs, disposable dental, used with clips	300	
Bottles, spare:		
4 ounce	2	
8 ounce	2	
Bowls, plates, cups, glasses, unbreakable sets	12	
Flatware:		
Forks, juvenile	6	
Knives, juvenile	2	
Paper cups	200	
Paper napkins, packages of 100	5	
Place settings, adult	6	
Spoons, juvenile	12	
Spoons, serving	4	
Toddler trainer cup, two handled	4	
Resting facilities:		
Blankets	12	
Cots (See Basic Environmental Equipment)		
Cribs (See Basic Environmental Equipment)		
Mattress pads, assorted sizes	18	
Sheets:		
Cotton, assorted sizes, patterns and colors	18	
Rubber, assorted sizes	12	
Sanitation:		
Diaper changing pads, vinyl	6	
Diaper changing paper rolls, hygienic	X	

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SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

An Infant/Toddler Group

6-8 CHILDREN—AGES 0-3

Suggested Order of Acquisition

Essential Items—A Extensions—B

SUGGESTED ITEMS	QUANTITIES A	B
Diapers, disposable and unscented (if not provided by parents or if diaper service is not used), pkg. of 1 doz.	400	
Dishwasher (See Basic Environmental Equipment)		
Hamper for soiled clothes	1	
Smocks, infant	4	
Sprays:		
Air freshener, cans	2	
Disinfectant, cans	4	
Towelettes, disposable, as needed	X	
Towels:		
Bath size	12	
Fingertip size	18	
Trash cans (See Basic Environmental Equipment)		
Washcloths	18	
Washer and dryer (See Basic Environmental Equipment)		
Wastebaskets (See Basic Environmental Equipment)		
IV GROSS MOTOR EQUIPMENT (Indoor/Outdoor)		
Apparatus:		
Boxes of various sizes for climbing	5	
Crawl-throughs: oil drum, lined barrels, cardboard tubing, perception box	1	
Indoor stair and slide combination	1	
Pads to place under climbing and sliding apparatus	2	
Rocking boat	1	
Tumbling mat	1	
Wading pool		1
Walking boards—planks slightly raised at one or both ends	1	1
Dramatic play:		
Dishes, soft, unbreakable	12	
Dolls, soft, unbreakable, washable, multiethnic, with Velcro® clothes	4	
Foods, unbreakable plastic, multiethnic	2	
Furniture: stove, table, sink, cupboard, bed, baby carriage, high chair, shopping cart	4	
Housekeeping: (child-sized) broom, dustpan, one each		2
Housekeeping: pots, pans, spoons and other kitchen utensils, multiethnic	4	
Playhouse, child-sized, dividers or low screen		1
Large muscle activity toys:		
Balls, various sizes, 3", 6", 12", 20" diameter, rubber or plastic	4	
Blocks, large foam, plastic or cardboard	10	6
Pounding peg board and mallet	2	
Pull toys, commercial or teacher-made	4	
Push toys	4	
Riding toys, propelled by arms or feet		3
Rocking horse		1
Throw toys: Bean bags, textured foam balls, yarn balls	4	
Wagon, small	1	
Sand play: (can be used with materials)		
Cups, spoons, plastic bottles and other measuring devices	6	
Dump and fill containers: bowls, cans, pails, measuring cups and spoons, sieve, funnel, scoop, sand shovel	10	
Indoor sandbox or table approximately 24" x 24" x 5", filled with sand	1	
Outdoor sandbox with cover	1	
Umbrella or other shade	1	
Water play:		
Container: plastic bathtub, dishpan or water table	1	
Dump and fill containers: bowls, cans, bottles, pails, watering cans, pitchers	10	
Manipulative materials: corks, floating tub toys, soap, sponge, sprinkler bottle, lotion dispenser, bottle, funnels	X	X
Vinyl sheet to place under water container	1	
V MANIPULATIVES		
Infant:		
Clutch balls, large with finger holds in soft materials	2	
Infant gyms, floor model	2	
Rattles, securely enclosed, pleasing to the ear, including measuring spoons on a ring, spools in a box, sound makers contrived from juice cans and large plastic beads	4	
Squeeze toys, soft washable	4	
Teething toys, durable	6	4
Toys to wear:		
Bell bracelets, securely made with a strip of elastic and a small bell	4	
Colorful wrist and ankle bands	4	
Foot sock with a smiling face	4	
Toddler:		

SUGGESTED ITEMS	QUANTITIES A	B
Beads, jumbo plastic, set	1	
Duplos®, set	1	
Peg board, giant plastic, set	1	
Pop-up toys	2	
Mazes, commercial beads on wire tracks	1	1
Vehicles, plastic	2	2
VI SENSORY PERCEPTION		
Listening materials:		
Bell blocks, wood, with bell inside each block, set of five	1	
Bell bracelets	6	
Chimes, wind		2
Mobiles, musical		2
Music boxes, pull-a-cord or wind-up	1	1
Paper to rattle and tear	X	X
Records and tapes, children's music, classical, multiethnic, bilingual	X	X
Smelling materials:		
Fresh flowers	X	X
Spices, sealed, in plastic bottles with perforated lids, set	1	
Tasting materials:		
Foods, new and familiar in identical containers, for identification games	X	X
Foods for tasting: fruits, vegetables, breadstuffs, cereals	X	X
Touching and feeling materials:		
Cuddle toys, animals, dolls	5	2
Flannel covering for babies' bottles to encourage feeling while feeding		3
Poke boxes (shallow boxes with hand holes on lid through which infant can touch variety of textures)	1	1
Texture ball (cloth ball covered with textures such as velvet, fur, cotton, sandpaper, etc.)	1	1
Texture glove made from a variety of materials, to be worn by an adult		1
Wall hangings, textured and touchable	1	1
Warm and cold materials: hot cereal, ice cubes, etc.	X	X
Visual materials:		
Color paddles, set		1
Mirrors, unbreakable, hand held	2	
Mobiles, brightly colored	2	1
Pictures, laminated or covered with clear contact paper, multiethnic	X	X
VII COGNITIVE		
Aquarium with fish		1
Bird feeding shelf		1
Blocks, unit set of foam or plastic	1	
Books on numbers		2
Coffee cans, empty, with clothes pins to be clipped on the rim	4	
Counting cubes and disks, large enough not to be swallowed	100	
Floating and sinking objects	6	
Form boards	2	1

SUGGESTED ITEMS	QUANTITIES A	B
Gear turning toys, wood or plastic	2	
Hardware fixture board with workable parts: hinges, door bolts, knockers, knobs, etc.	1	
Locks and attached keys, large	2	
Magnetic board and accessories	1	
Magnifier on tripod		1
Nature objects: autumn leaves, snow, flowers, fruits, nuts	X	X
Nesting toys, commercial and teacher-made	4	2
Number puzzles	X	
Number sorters		2
Nuts and bolts, large, wood or plastic, set	1	
Plants, living, non-toxic	X	X
Puzzles, variety, some with handled pieces	6	6
Shells and rocks, wide assortment, set of 8-10	1	
Stacking toys, commercial and teacher-made	4	2
Sorting toys, commercial and teacher-made	4	2
Terrarium with plant and amphibian life		1
VIII CREATIVE		
Music		
Autoharp		1
Bells, melody, hand and wrist, set	1	
Chimes, set	1	
Instruments: multiethnic		
Drums		
Bongo	2	
Handcrafted drums, such as coffee can with plastic lid or innertube top, oatmeal box with lid glued on	4	
Maracas	2	
Rhythm sticks, pair	2	
Tambourines	2	
Xylophone	1	
Record player	1	
Songbooks:		
Nursery rhymes	1	
Traditional, multiethnic selections	2	1
Tape recorders, adult and child	2	
Tapes and records: multiethnic		
Blank cassettes	2	2
Musical: listening, activity	4	2
Narrative: talking stories and poems	4	2
Sounds: animals, city noises, farm noises	1	
Art		
Accessories:		
Brushes, large for water painting and painting with color	5	
Crayon holders	2	
Easel	1	
Smocks (use old shirts worn backwards or aprons)	X	X
Tray, plastic for finger painting	2	
Illustrations of pleasing line, form, color, such as designs on wallpaper samples, gift wrap, wall decorations of mounted fabrics, calendar photographs and drawings	X	X

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SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

An Infant/Toddler Group

6-8 CHILDREN—AGES 0-3

Suggested Order of Acquisition

Essential Items—A Extensions—B

SUGGESTED ITEMS	QUANTITIES A	B
Media:		
Chalk, soft, white for chalkboard or paper, white, chubby sticks, box	1	
Crayons, large assorted colors, box	2	2
Markers, washable, non-toxic, assorted colors including multiethnic skin tones, box	2	2
Play dough for modeling (cooked and uncooked recipes)	X	X
Poster paint: red, yellow, blue, white, black, brown, quart each	1	1
Soap suds, colored, made with vegetable coloring	X	X
Natural objects: flowers, plants, rocks, shells, wood	X	X
Paper:		
Assorted colors for mounting display materials, pkg.	4	4
Assorted sizes, shapes and colors	X	X
Computer print-out, recycled	X	X
Magazines, recycled	X	X
Newsprint, pkg. of 100 sheets	3	3
Wallpaper, samples	X	X
Movement and pretend play		
Dramatic play props (See Gross Motor Equipment)		
Hats, washable	X	X
Scarves and ribbons, as movement props	X	X
Telephones	2	
IX COMMUNICATION		
Books:		
Cloth and paper, with squeeze and feel pictures, various sizes and shapes	10	2
Nursery rhyme books	2	
Story, to read to children, plus access to library books, include multiethnic	10	10
Discussion pictures about foods, health, safety, science, social learning, everyday objects, some laminated	X	X
Feel box (use small box with child hand-size hole, fill with objects child can feel, take out, talk about and put back)	1	
Flannel board	1	
Flannel board accessories: animals, numerals, letters, geometric shapes, multiethnic people	18	6
Language games involving identifying, sorting, matching	4	
Puppetry, familiar figures:		
Hand puppets, multiethnic	4	
Homemade puppets, stick, sack, cloth	4	
Screen or stage behind which puppets can operate		1
X RECORD KEEPING		
Attendance record sheets, weekly	52	
Booklets, to record children's verbalizations	8	
Budgeting record book	1	
Card file for anecdotal records	1	
Daily "communication with parent" forms	250	
File cards, 6" x 4" or to fit available file drawers, pkg. of 100	5	
Health and general information reporting sheets	X	X
Portfolios of children's work	12	
Progress reporting sheets on specific behaviors	12	
Teacher planning book	1	

A Preschool Group

16-20 CHILDREN—AGES 3-5

Qiuping Cao and Betsy Mercado

Infancy/Early Childhood Committee Chairperson, James Hoot

INTRODUCTION
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Because of children's diverse skills and abilities, preschool programs afford exciting challenges. While no longer "toddlers," 3- and 4-year-olds may still behave like younger children. Conversely, the same children may, at times, use language and exhibit other skills more characteristic of older children. This range of behavior and skills poses special problems for teachers trying to develop a program that incorporates appropriate expectations and opportunities.

Although children come to preschools with a wide range of skills and knowledge, they frequently share a number of common characteristics. Teachers should consider these characteristics when selecting appropriate material and equipment. First of all, preschool children are highly sensory-oriented (i.e., they develop and refine basic concepts primarily through their senses). Thus, it is through sensory exploration that preschool children develop the basic concepts that form the foundation of logical and abstract reasoning. Secondly, preschoolers' thought processes are best developed through supportive interactions with people and objects in the environment. Therefore, increased interaction with peers in the preschool years is necessary for developing cognitive as well as social and emotional competencies. The development of cognitive skills is fostered as much through collaboration with peers as through instruction from adults. Thirdly, a major task for preschoolers is continued refinement of bodily skills. To promote this development, repeated opportunities should be provided for coordinating body movement with seeing, hearing, touching, smelling and tasting.

Facilitators need to realize that activities frequently categorized as social, emotional, physical and intellectual for adult planning purposes are not so neatly separated in developing children. Rather, these areas are best developed simultaneously, in an intricately interwoven network that cannot be taken out of context. Developing children require

materials and equipment that support maximal flexibility within an integrated classroom framework.

As a closing note, research has left little doubt that the primary medium of learning for preschoolers should be educational play. Play with blocks, sand, water, dolls and other materials is the best way to nurture total development (especially in pre-math and pre-reading skills). In light of this, the majority of the school day should be devoted to opportunities for free-choice educational play with raw materials, toys, games, adults and peers. Research and professional wisdom suggest that programs that do not allow for a preponderance of free-choice, exploratory, play-oriented activities are forms of educational malpractice.

It is impossible to offer any one "right" list of equipment and materials that fully responds to the diverse needs of a preschool program as described above. Nevertheless, the list below is intended as a beginning point for supporting the unique characteristics of children at this level. These items should be supplemented by a wide variety of other safe materials deliberately chosen to support the growth and development of individual children in your group.

Suggested Order of Acquisition

Essential Items—A Extensions—B

Note: Items, quantities and priorities suggested on the following pages of this section are to be thought of as guides rather than inventories.

SUGGESTED ITEMS	QUANTITIES A	B
I BASIC ENVIRONMENTAL EQUIPMENT		
Bookcase for children's books, on casters, 1 or 2 slanted shelves on top	1	
Bookshelf, for adult books, up high	1	
Bulletin boards, portable	2	
Cabinets:		
Movable, sturdy, with adjustable shelves for storage of curriculum materials, cleaning supplies, food, etc.	4	
Movable, sturdy, with rigid shelves, child height for self-help equipment and displays	2	
Chairs:		
Adult size:		
Desk	1	
Folding, for meetings	10	20
Rocking	1	
Child size, stackable, lightweight but sturdy, 1 per child, several for staff and visitors	30	
Chalkboard, portable, with chalk and erasers	1	
Clock, wall	1	
Counter or shelf for preparation of craft materials and food	2	
Cubbies, indoor, wood, with bottom shelf, hooks above and 1 or 2 shelves at the top, 1 per child	20	
Drinking fountain, child height	1	
Filing cabinet, 2-4 drawers	1	
Fire extinguishers	X	
Laundromat (See Housekeeping Supplies—Cleaning)		
Peg board with pegs for storage/display	1	
Pillows	4	
Plants	X	X
Refrigerator	1	
Rugs, if room not carpeted, indoor/outdoor, approx. 9' x 12'	1	1
Sand table (See Psycho-Motor Development)		
Shed, outdoor, with cupboards, for storage of maintenance supplies and items such as hollow blocks, vehicles, sand-box toys, art materials, etc., rain and vandal-proof	1	
Shelf unit, for blocks, so individual sizes and shapes can be easily seen, chosen and put back by children and adults	1	
Sinks:		
Indoor, with counter space	1	
Outdoor, with counter space		1
Smoke alarms	X	
Step-stool	1	
Stove	1	
Tables:		
Adult size, seating 4, folding	1	
Child size:		
Seating, 4-8, same height, so can be combined, 18" to 20" high	4	

SUGGESTED ITEMS	QUANTITIES A	B
Seating 8-10 children and adults, for outdoor use	1-2	
Serving cart	1	
Trash cans, with lids, large	2	
Trays, storage, non-toxic, impact resistant/lids	X	
Wastebasket, large with lid	1	
Wastebaskets for recyclable items	X	
II GENERAL MAINTENANCE, INDOOR/OUTDOOR		
Broom, push, heavy duty for outside	1	
Buckets, 1 metal, 1 plastic, flat bottom, large	2	
Electrical extension cord and plug, heavy duty	1	
Hardware kit: nails, nuts, bolts, sandpaper, screws, staples, washers, etc.	1	
Iron, electric	1	
Ironing board	1	
Plunger	1	
Rakes:		
Garden	1	
Leaf	1	
Rope, 4' to 8'	1	
Shovel or spade	1	
Tool box	X	
Trash bins	1	
Twine, cone	1	
III HOUSEKEEPING SUPPLIES		
Brooms:		
Push	1	
Regular	1	
Cleansers:		
Disinfectants	X	
Glass cleaner, can	1	
Scouring powder, cans	12	
Cloths, cleaning	6	
Dishpan	2	
Drying rack, folding	1	
Dust pan with brush	X	
Garbage bags/ties	X	
Garbage can with lid	1	
Mops:		
Dust	1	
Wet	1	
Soap:		
Bar, doz.	3	
Liquid, qt.	3	
Powder, box	3	
Sponges, several sizes	6	
Strainer, sink	1	
Toilet paper, carton of 3,000 sheets	5	
Towels:		
Bath, each child brings own	X	X
Dish	12	
Hand	12	
Paper, case of 3,000	6	
Vacuum cleaner, if floor is carpeted		1
Vacuum cleaner bags, as needed		X
IV HEALTH AND SAFETY		
First aid supplies:		
Cotton blankets, one per child	24	
First aid cabinet stocked in accordance with individual school regulations or with the following items:		
Antiseptic soap (Phisoderm™)	2	
Bandages, plastic strips, boxes	6	
Eye bath	1	
Gauze, sterile, boxes	4	
Gauze pads, sterile, boxes	4	
Gloves, latex, for use when in contact with all body fluids	X	
Hypoallergenic adhesive tape	2	
Ice pack	1	
Medicine glass	1	
Red Cross first aid manual	1	
Rubbing alcohol, bottle	1	
Safety pins, pkg.	1	
Thermometer strips	3	
Tweezers	1	
Flashlight	1	
Handkerchiefs, paper, small hospital size, boxes	18	
Rugs, plastic covered foam mats or cots for resting, 27" x 48", or towels from home	24	
Towels, paper, junior size, pkg. of 150	10	
Food preparation and service:		
Food and cooking are considered part of the education program for children and adults, as well as serving nutritional needs. Health standards and regulations must be observed. Items are suggested only for schools that serve hot meals daily.		
Blender	1	
Bottle opener	2	
Bowls:		
Serving, unbreakable, assorted sizes	3	
Soup/cereal, plastic	30	
Sugar	2	
Bowl scrapers, various sizes	2	
Cake pans, unbreakable	4	
Canisters, or other food containers, with lids	6	
Can openers:		
Electric	1	
Hand	1	
Colander	1	
Cookie:		
Cutter, assorted sizes, special shapes for holidays	12	
Decorator	1	
Sheets	4	
Corn popper, hand or electric	1	
Cups, paper, flat bottom, box of 100, 5 oz.	6	
Cutlery:		
Forks:		
Heavy plastic, reusable, for special events	60	
Long handled	2	
Salad, stainless steel, for children and adults	36	
Serving	3	
Knives:		
Bread	1	
Butcher	1	
Dinner, heavy plastic, reusable, for special events	60	
Paring	2	
Stainless steel, for children		

SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

A Preschool Group

16-20 CHILDREN—AGES 3-5

Suggested Order of Acquisition

Essential Items—A Extensions—B

SUGGESTED ITEMS	QUANTITIES A	B
and adults	12-20	
Spoons:		
Cooking, with long handles, unbreakable	3	
Serving	6	
Soup, stainless steel	6	
Teaspoons, stainless steel	36	
Double boiler	2	
Egg beater, hand	1	
Electric mixer	1	
Flour sifter	1	
Fry pans:		
Electric	1	
Regular, 6", 8", 10", 12"	1	
Funnels:		
Large	1	
Small	1	
Glasses, unbreakable:		
Large, 10 oz.	6	
Small, 6 oz.	24-36	
Hot pads	4	
Hot plate, electric stove, if full day	1	
Ladles	2	
Measures:		
Bowls, nesting set, unbreakable	3	
Cups, unbreakable, sets	2	
Spoons, sets	2	
Napkins, paper, buy in quantity	X	
Oven, portable, if no stove available	1	
Pie pans, unbreakable	6	
Pitchers, unbreakable:		
Cream	1	
Pt. size	4	
1-2 qt. size	4	
Plates:		
Dessert, paper	40	
Dinner, heavy plastic	36	
Dinner, paper	36	
Serving, assorted sizes	4	
Pot holders	4	
Rolling pins, additional ones for children's use	2	
Salad bowl and servers	1	
Salt shakers, incl. one for stove	4	
Sauce pans, 1 qt., 4 qt., 6 qt., with lids	4	
Sieves:		
Large	1	
Small	1	
Spatulas, assorted sizes	3	
Storage containers:		
Freezer	2	
Refrigerator	4	
Tablecloths, plastic, to be used for meals or cooking activities, one for each table	X	
Table mats, plastic, if desired	24	
Teakettle	1	
Tongs	1	
Trays, assorted sizes	6	
Vegetable peeler	1	
V AUDIOVISUAL EQUIPMENT		
CD and cassette recorder/player, dual cassette decks, separate speaker with 3' extension cord, auto-reset tape counter	X	
CDs	X	
Filmstrip projector	1	
Filmstrips (access to)	X	
Movie and sound projector, (access to)	X	
Projection screen	X	
Record player	X	
Records	X	
Tape recorder	1	
Tapes or cassettes for listening and recording	4	
VI PSYCHO-MOTOR DEVELOPMENT		
Balls, rubber, assorted sizes (10)	X	
Barrels	1	
Bars for hanging	2	
Bean bags	20	
Boards:		
Cleated, 1'-6'	1	
Plain, 6'-8'	3	
Resilient, for jumping	2	
Bowling pins set	X	
Boxes, large, wooden	2	
Climbing structures: old tires, empty electrical reels, concrete culvert units	2	
Crates, packing boxes	1	
Crawl-through tunnel or cubes, large	1	
Dollies, hand	1	1
Folding mats, anti-bacterial, anti-fungal, reinforced seams to place at the end of the indoor slide, etc.	5	
Hoops, 18" to 24" in diameter	20	
Hose, length as needed	1	
Ladder, lightweight, sturdy for children, 4' to 6'	1	
Net, cargo, for climbing		1
Pails, assorted sizes, for outdoor play	3	
Parachute, sturdy, 6' diameter, hand-held strap	X	
Pulleys	1	
Rakes	2	
Recordings, suggesting gross and fine muscle activities	4	

SUGGESTED ITEMS	QUANTITIES A	B
Ribbon sticks for ribbon dance	20	
Rocking boat	1	
Rope, 6' to 8' length	1	
Sandbox frame with sand (water faucet and hose nearby)	1	
Sand toys, variety	X	
Shovels, small but sturdy	4	
Spades	2	
Swing set, double with canvas or rubber seats	1	
Trampoline, rubber, attached to climbing structure, low enough for children's safety	1	
Wheel toys:		
Tricycles	2	
Tricycle trailers	1	
Wagons	2	
Wheelbarrow	1	
VII PERCEPTUAL DEVELOPMENT		
Bead laces	12	
Beads, wooden, 1/2" cubes and assorted shapes, box of 1,000	1	
Counting rods, sets	2	
Dressing frames	4	
Games, matching:		
Block: attribute, design, domino, number, property, etc.	4	
Card: animals, geometric shapes, flowers, vehicles, etc.	4	
Frame: bingo and lotto type with birds, flowers, food, clothing, zoo animals, etc.	4	
Lacing toys	X	
Linking toys	X	
Magnetic board, 18" x 36"	1	
Magnetized figures, 50 items, set	1	
Mechanical board: bolts, nuts, locks, etc.	1	
Nest of rings or boxes, 6 to 8 items	1	
Olfactory materials: spices, foods, greenery, etc. in plastic bottles with perforated, tightly sealed lids	X	
Shape or sorting box with interchangeable panels	1	
Sound cylinders, approx. 3" high, 2" diameter, set of 5	2	
Tactile materials: sandpaper, cloth, wood, metal, sponge, rocks, etc., in container	X	
Taste materials: sugar, flour, salt, fruit juices, etc., in plastic containers with removable lids	X	
Water table with water toys	X	
VIII BUILDING AND CONSTRUCTION		
Blocks:		
Hollow	30	
Parquetry, set	2	
Table, choose from cube, interlocking, nesting, regular small sets in variety of materials: wood, plastic, rubber	3	
Unit, full school set (protected floor space and appropriate shelving important)	150	
Boards, small, flat 24"-36" long, to use with blocks	4	
Building sets: (choose from such as the following in school size sets of sufficient quantities to satisfy needs)		
Crystal Climber	1	
Giant tinker toys	2	
Lego	2	
Lincoln Logs	1	
Rig-a-jig	1	
Rising Towers	1	
Tinker toys	1	
Carpentry: (all tools real, not toy)		
Bench	1	
Bits, 1/4", 1/2" and 3/4"	1	
Block plane	2	
Boiled linseed oil	2	
Brace, adult size, 1-1/2 lbs.	1	
Brushes	5	
Clamps, vise or c-clamps	6	
Coping saw, wooden handle	1	
Coping saw blades	1	
Crowbars	3	
Goggles (eye protection), adult and child-sized	X	
Hammers, 7-13 oz., flat head with claws	2	
Hand drill and drill sets	1	
Hinges, 1" and 2" with screws	X	
Measuring rod, tape, ruler, one of each	3	
Nails, assorted sizes, 1/2" to 2", some very long, lbs.	5	
Nuts and bolts, assorted, box	1	
Pliers	1	
Sandpaper, medium grit, pkg.	1	
Saws, crosscut, 14" blade, 18" blade, 8 teeth per inch	2	
Screwdrivers, 8", 12", regular and Phillips	2	
Screws, steel, flat head, assorted sizes, box of 50	2	
Washers, assorted sizes, box	1	
Cloth, yds.	2	
Corks, supply accumulated	X	
Foam rubber pieces, supply accumulated	X	
Glue, tubes	1	
Lumber:		
Assorted shapes and sizes, soft, scrounged (often available from lumber yard disposal bins and carpentry shops) 50-75 pieces	X	
Assorted sizes, rough measure footage, 30'-60', purchased	1	1
Sand/water play materials, all unbreakable:		
Brushes, large	3	
Containers, wide variety	6	
Dishes, variety	4	
Dishpans	1	
Floating toys and objects	4	
Funnels, assorted sizes	2	
Hose, small pieces, can be scrounged	2	
Measuring sets:		
Cups	2	
Spoons	2	
Molds, assorted	3	
Pitchers	1	
Scoops	4	

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SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

A Preschool Group

16-20 CHILDREN—AGES 3-5

Suggested Order of Acquisition

Essential Items—A Extensions—B

SUGGESTED ITEMS	QUANTITIES A	QUANTITIES B
Sieves	2	
Sand/water table or tray	1	
Straws, plastic, pkg.	1	
Tongue depressors or craft sticks, pkg. of 1,000	1	
Toothpicks, colored box	1	
Vehicles:		
Construction, large, sturdy, variety	3	
Transportation, unbreakable, in various sizes	6	
Wheels, wooden disks	6	
IX CREATIVE ARTS		
Aprons, plastic or cloth, homemade	10	
Beads, and other objects for stringing	500	
Brushes, glue, 1/2-1" thickness handle length, 6"-9"	2	
Brushes, paint, 1/2-1" thickness handle length, 6"-9"	12	
Brush holders	2	
Cans, cookie cutters, for cutting dough, assorted sizes	4	
Chalk:		
Assorted colors, large, box	2	
White, box	1	
Clay, gray and red, lbs. each	25	
Cloth:		
Burlap and/or heavy weight mesh for stitchery, yds.	2	
Old sheeting to paint/draw on, supply accumulated	X	
Plastic drape, one for each table	X	
Clothespins, for hanging art work	48	
Coffee filters, box of 100	1	
Collage materials, scrounged, such as pieces of cloth, paper, leather, plastic, old greeting cards, buttons, Styrofoam, yarn, ribbon, sequins, glitter, beads, etc., supply accumulated	X	
Containers:		
For clay, plastic with lid	2	
For collage materials: old boxes, baskets, jars, etc., supply accumulated	X	
For paint: small cans, cut down cartons, plastic, with lids	10	
Cookie cutter, for use with play dough	12	
Corks for painting	6	
Cotton balls, bags	4	
Crayon holders	2	
Crayons, jumbo, assorted colors, boxes	10	
Drying rack for art materials, if needed	1	
Easels, double adjustable	2	
Fabric scraps (assorted box)	1	
Garlic presses for use with clay	2	
Hole puncher	1	
Kiln (access to)	X	
Knives, plastic (box of 25)	1	
Knives, table, for use with clay and dough (can be old)	6	
Looms, handmade out of cardboard, paper plates, wood and nails, for simple weaving	2	
Marking pens, non-toxic	6	
Masking tape, roll	4	
Natural items for collage and painting (e.g., acorns, corks, dried flowers, herbs, leaves, feathers, seeds, etc.)	X	
Newspapers	X	
Paint:		
Finger, commercial, pts.	6	
Finger (make as needed out of starch, water, tempera and soap flakes)	X	
Liquid tempera, assorted colors, qts.	10	
Powdered tempera, assorted colors, boxes	6	
Watercolors, boxes with brush	2	
Paint jars, plastic with lids	16	
Paper:		
Brown, wrapping, 15 lb. roll with dispenser	1	
Construction, colored, 9" x 12", pkg. of 50 sheets	20	
Construction, colored, 12" x 18" pkg. of 50 sheets	8	
Manila for drawing, 12" x 18", reams	8	
Mural paper, white, roll	1	
News, unprinted, 18" x 24", pkg.	15	
Poster, colored, 9" x 12", pkg. of 100 sheets	20	
Poster, colored, 12" x 18", pkg. of 100 sheets	4	
Tagboard, medium weight, 24" x 36", sheets	10	
Tissue, 20" x 30", pkg. of 24 sheets	4	
Paper bags, approx. 8" x 14"	20	
Paper brads or fasteners, boxes	2	
Paper clips, box of 100	4	
Paper cutter, 12" blade	1	
Paste, semi-liquid, gal.	2	
Paste jars, 2" diameter, 1 1/2" deep, with covers	10	

SUGGESTED ITEMS	QUANTITIES A	B
Pastesticks, hardwood, pkg. of 500	1	
Pencils, soft, thick lead, without erasers	12	
Pencil sharpener	1	
Pie tins or other containers, for children to use in mixing paint	6	
Pins, safety, medium size, box of 100	1	
Pipe cleaners, assorted colors, pkgs.	2	
Plasticine, single color, lbs.	5	
Play dough, can be made or purchased, as needed	X	
Printing materials for play dough, clay and paint, assorted kinds: cut vegetables, spools, blocks, etc., supply accumulated	X	
Rolling pins for play dough	4	
Salt, for cooking and making play dough, boxes	2	
Sand:		
Indoor sandbox, white, fine (lbs.) or cornmeal or sawdust in comparable amounts	200	
Outdoor sandbox, coarse, lbs.	800	
For painting, lbs.	2	
Scissors:		
Double handled training, child-size	2	
Rounded, left-handed, child-size	8	
Semi-pointed, right-handed, child-size	8	
Shears, pair, adult-size	1	
Scotch tape, rolls	4	
Sponges, to be cut into pieces approx. 1" x 2" x 2" for painting	2	
Spray bottles	5	
Squeeze bottles, supply accumulated	X	
Staple remover	1	
Stapler, adult-size	2	
Stapler, child-size	4	
Staples, box	2	
Starch for mixing finger paint, boxes	2	
Straws for blow painting (box)	1	
Tape, Mystic, cloth with plastic finish, 3" wide x 108", roll	1	
Water color markers, non-toxic, water soluble, pkg.	3	
Wax	1	
Wheat paste, lbs.	1	
Wood pieces for collage and construction, scrounged, supply accumulated	X	
Yarn for collage, stitchery and weaving, scrounged and balls	4	
X DRAMATIC PLAY		
Animal:		
Figures, small, plastic/rubber, a variety, in quantity for use with blocks and sand/water play	16	
Puppets, assorted	6	
Stuffed animals	4	
Camping:		
Backpack, from surplus store	1	
Lantern		1
Pup tent		1
Sleeping bag		1
Utensils	4	
Doctor/Nurse:		
Bandages, kit	1	
Clip board and pencils	2	
Cot	2	
Instruments:		

SUGGESTED ITEMS	QUANTITIES A	B
Sphygmomanometer for blood pressure	1	
Stethoscope	1	
Mirrors	1	
Mask	1	
Grooming-toilet articles, male and female: comb, hair brush, hair rollers, hand mirror, nail brush, manual razor without blades and/or electric razor with plug off, shampoo bottles, hair spray bottles, shaving brush, soap	X	
Home management and family living:		
Bathing and cleaning:		
Broom, child size	1	
Dishcloth	2	
Dry mop	1	
Dustpan	1	
Iron, wood or plastic	1	
Ironing board	1	
Pail	1	
Soap flakes, sample boxes	1	
Towels:		
Bath	1	
Dish	2	
Hand	2	
Washcloths	2	
Wet mop, 30" handle	1	
Cooking and eating equipment, real, unbreakable:		
Baby bottle	2	
Cutlery: forks, knives, spoons, place settings	4	
Dishes: bowls, cups, saucers, small glasses, plates, place settings	4	
Food containers, empty	X	
Food, pretend	X	
Utensils: cake pan, colander, frying pan, kettle, ladle, large spoon, measuring cups and spoons, mixing bowls, pie pan, sauce pan, sieve, toaster (each)	2	
Doll equipment:		
Baby bottles	2	
Bed	1	
Buggy and stroller	1	
Clothes, assorted, male, female, baby, older, various fastenings	12	
Dishes, place settings	2	
Doll house, open on sides, top removable	1	
Doll house dolls: families, multiethnic, multicultural, bendable preferred, to use also with blocks, vehicles, sand/water play	4	
Dolls, baby boy, girl, multiethnic, multicultural, unbreakable, washable	X	
Dress-up properties, male and female: aprons, belts, billfolds, blouses, boots, uniforms, dresses, hats, hose, overalls, jackets, jewelry, pants, purses, scarves, shawls, shoes, skirts, suitcase, ties, watches, wigs, supply accumulated	X	
Furniture for playhouse area,		

SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

A Preschool Group

16-20 CHILDREN—AGES 3-5

Suggested Order of Acquisition

Essential Items—A Extensions—B

SUGGESTED ITEMS	QUANTITIES A	QUANTITIES B
sturdy, unbreakable:		
Bed and mattress, big enough for child to curl up on	1	
Chairs:		
High chair with tray	1	
Rocking	1	
Straight	4	
Curtains, as desired	X	
Dresser or chest	1	
Mirror, full-length, child height	1	
Refrigerator	1	
Sink	1	
Sofa	1	
Stove	1	
Table, to seat four children	1	
Telephone	1	
T.V. frame, scrounged	1	
Office and school:		
Attache case, scrounged	1	
Computer monitor/keyboard (scrounged)	1	
Paper pads	2	
Paper trays	2	
Pencils and erasers	2	
Typewriter, scrounged	1	
Waste baskets	2	
Playhouse, outdoor	1	
Puppets, family, hand or finger	4	
Repair and yard work:		
Carpentry apron	1	
Paintbrushes	X	
Paint cans containing colored soapsuds	3	
Sewing materials: buttons, cloth pieces, decorations (pieces of lace, ribbon, beads), large needles, rounded scissors, thread, yarn, scrounged	X	
Transportation/Occupations: buy and scrounge		
Dress-up clothes: hats, uniforms, tools for a variety of occupations, such as bakers, bus drivers, carpenters, divers, engineers, fire fighters, air pilots, police officers, sailors, taxi drivers, train engineers, postal workers, construction workers	X	
Model sets: airport, camper, fire station, garage, space center, etc., with proportioned buildings, figures, furnishings, tools, vehicles	4	
People figures, proportioned, plastic, rubber, wood, representing a variety of workers	6	
Puppets, representing different workers	4	
Traffic signs for air terminals, highways, railroad crossings, waterways	5	
Note: Additional dramatic play centers such as the following could also be provided based upon the children's needs and experiences: animal hospital, bakery, dentist office, farm, fire station, flower shop, gas station, grocery, hair salon, laundromat, pizza restaurant, police station, post office, repair shop, etc. Materials for the above can be easily scrounged by parents, teachers and community friends.		
XI MUSIC		
Autoharp		1
Cassettes		X
CDs		X
Cassette player for children to handle		X
Claves		6
Dancing clothes: scarves, skirts, streamers, supply accumulated		X
Guiro tone block		1
Guiro with scraper		1
Rhythm instruments:		
Bells, variety: ankle, cow, wrist, melody set, supply accumulated		X
Castanets		2
Drums, variety: snare, tom-tom, etc.		2
Guitar		1
Kazoo		2
Keyboard, can be homemade		2
Maracas		4
Piano		1
Recorder, wind instrument		1
Sticks, rhythm, flat/fluted sets		12
Tambourines		2
Triangles		1
Ukulele		1
Wind chimes		1
Wood blocks		2
Xylophone		2
XII LANGUAGE ARTS		
Alphabet letters, moveable, sandpaper, tactile, in several sizes		300
Books:		
Permanent collection of 30 or more, and circulating collection borrowed from library. Choose high quality children's books, look for multicultural, multi-ethnic, non-sexist content.		X
Topics to include:		

SUGGESTED ITEMS	QUANTITIES A	B
Animals		
Child activities		
Community		
Fairy tales		
Fantasies		
Holidays		
Mother Goose		
Seasonal		
Sensitive topics—adoption, divorce, illness		
Easy to read books	X	
Picture books, including alphabet books and dictionaries	X	
Poetry to read aloud	X	
Resource books on such topics as biological science, community, crafts, cultures, family, geography, holidays, physical sciences, space science	X	
Camera for snapshots of children, etc.	1	
Chalkboards, portable, with chalk and erasers	1	
Chart paper, large, for experiences	2	
Computer (for exploration)	1	
Felt board	1	
Felt board pieces: alphabet, stories, animals, familiar objects, etc., pkg. of 50 items	1	
Games, simple, such as lotto and other picture games	4	
Notebooks for dictated stories	3	
Perception cards, set	1	
Puzzles, wooden, 9 to 16 pieces	8	
Typewriter, primary	1	
XIII MATHEMATICS		
Counters, unbreakable: animals, beads, blocks, buttons, cards, color chips, nails, napkins, marbles, sticks, etc.	X	
Food to cut and divide	X	
Geometric figures, wooden, 3" units, approx. 6 items, set	1	
Matching sets	X	
Measuring equipment, English and Metric:		
Dry units	4	
Liquid units	4	
Rulers	2	
Tape	1	
Thermometers:		
Hand manipulated model	1	
Indoor/Outdoor	1	
Money, play, homemade	X	
Number games	4	
Numerals, tactile in variety of sizes and materials	20	
Objects: any in environment to examine their properties, likenesses and differences	X	
Peg boards, 12" x 12"	4	
Pegs, hardwood, 1/8" diameter, 2" long, box of 1,000	1	
Shapes, basic sets, tactile, unbreakable, variety of sizes and materials, supply accumulated	X	
Sorting containers, unbreakable: baskets, boxes, cans, glasses	3	

SUGGESTED ITEMS	QUANTITIES A	B
Timers, buy or scrounge, as needed for curriculum:		
Calendars	2	
Clocks:		
Alarm, hand-wound	1	
Electric, wall	1	
Watch	1	
Weights, English and Metric:		
Bathroom scale	1	
Kitchen scale	1	
XIV SCIENCE		
Air experiments: (obtain as needed each year)		
Balloons	6	
Bubble pipes	20	
Squeeze bottles, supply accumulated	X	
Straws	24	
Tubing, 3' length	1	
Windmills for water and sand	4	
Animal foods that are appropriate for below	X	
Animals: Follow all public health and safety laws and regulations, provide adequate food, medical care, shelter. Choose from:		
Baby chicks		
Ducks		
Fish		
Gerbils (where permitted law)		
Guinea pigs		
Hamsters		
Mice		
Parakeets		
Rabbits		
Snails		
Snakes		
Sponges, living		
Aquarium	1	
Books dealing with science concepts	X	
Eggs and incubator	4-6	
Food and gardening:		
Use of food in science is essential to a child's experiencing the changes of state in matter.		
Children's cookbook	1	
Containers: bottles, cartons, flower boxes, flower pots, jars, etc., supply accumulated	X	
Cotton, box	1	
Dirt box or dirt plot	1	
Fertilizer, lbs.	5	
Food:		
Natural foods, fruits, nuts, vegetables	X	
Packaged mixes and processed foods, pkg.	4	
Raw ingredients: flour, salt, soda, spices, sugar, etc., in tightly covered containers, one for each item	X	
Garden tools, child size: hoe, rake, spade, set	1	
Plants, cultivated and wild	X	
Seeds, collected from nature and purchased, supply accumulated	X	
Stakes and string or wire fencing	X	
Terrarium	1	

SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

A Preschool Group

16-20 CHILDREN—AGES 3-5

Suggested Order of Acquisition

Essential Items—A Extensions—B

SUGGESTED ITEMS	QUANTITIES A	QUANTITIES B
Watering cans or hoses	2	
Grow chart, height, weight	1	
Light and heat:		
Electricity: batteries, bulbs, buzzers, simple circuits, supply accumulated	X	
Magnifying glasses, hand	2	
Magnifying glasses on stand	1	
Mirrors, unbreakable	2	
Prisms, assorted	2	
Liquids and supplies:		
Liquids:		
Ice	X	
Oil, 1/2 pt. can	1	
Other liquids	X	
Supplies:		
Containers, plastic, supply accumulated	X	
Kettle	1	
Medicine dropper	2	
Paper:		
Blotting, odds and ends	X	
Filter, pkg.	1	
Sponges	2	
Sprayer	1	
Squeeze bottles, supply accumulated	X	
Squirt bottles, for spraying, supply accumulated	X	
Mechanics and physics:		
Inclined planes	1	
Magnets, variety of shapes and sizes, and things to try to pick up	2	
Picture collection: animals, plants, geography, astronomy, machines, etc.	X	
Siphon	1	
Soda bottles for experiments	X	
Take-apart equipment (donated): old clocks, typewriters, vacuum cleaners, etc., supply accumulated	X	
Wheels	4	
Minerals: rocks, stones, etc.	X	
XV OFFICE SUPPLIES AND RECORD KEEPING		
Bulletin board	1	
Calendar	1	
Correction fluid for typewriter (bottle)	1	
Diskettes for computer	X	
Diskette tray	1	
Fax machine (access to)	1	
File cabinet	1	
Index cards	X	
Key organizer	1	
Manila envelopes, 2 sizes	36	
Manila folders	36	
Marking pens, several colors	4	
Message pads	10	
Microcomputer	1	
Paper clips, 2 sizes, boxes	2	
Paper hole puncher	1	
Pencils, boxes	6	
Pens (boxes)	5	
Photocopier (access to)	1	
Rubber bands, assorted sizes, boxes	4	
Scissors	2	
Stationery, letterhead and plain, 2 sizes, quire of each	10	
Thumbtacks, boxes	8	
Writing paper tablets, ruled and unruled, in several sizes	8	
Yardstick	1	

A Kindergarten Group

20-24 CHILDREN—AGES 4-6

Carol Sue Marshall and Paula Weaver-Blackshear

Infancy/Early Childhood Committee Chairperson, James Hoot

INTRODUCTION
I BASIC ENVIRONMENTAL EQUIPMENT
II MOTOR SKILL DEVELOPMENT
III SENSORY MATERIALS
IV REPRESENTATIVE PLAY AND SOCIAL AWARENESS
V ART AND CONSTRUCTION
VI MUSIC
VII LANGUAGE ARTS
VIII MATHEMATICS
IX SCIENCE
X SNACKS AND SPECIAL OCCASIONS
XI RECORD KEEPING

Over the past decade, flagrant misconceptions about how children learn have led to increased formalization of instruction in many early childhood programs. Perhaps the most severe casualty of such inappropriate instructional programming has been the kindergarten. Research has consistently demonstrated that meaningful learning at this level is best facilitated through concrete, play-based interactions with materials and competent adults. Kindergarten children are working on mastering skills in all developmental areas, and require constant practice (Bredekamp, 1987; Moyer, Eggerston & Isenberg, 1987; Peck, McCaig & Sapp, 1988). Thus, equipment and materials for this age group should reflect such playful interactions. Toward this end, the following equipment and materials list is suggested.

This list is submitted as a beginning and is not meant to be all-inclusive. Geographic and cultural nuances of school communities, as well as the unique composition of each kindergarten group, must be major considerations in the final selection of equipment and materials.

When developing learning environments using the items recommended herein as well as other supportive materials, maximal integration of subject concepts is strongly encouraged. Children's natural learning is not likely to occur through detached separate subjects (Krogh, 1990). Projects, based on the interests of children and facilitated by the teacher, provide a variety of learning opportunities that encompass many subject areas within an area of interest. Chard and Katz (1988) advocate the project approach to maximize learning by capitalizing on children's interests and natural learning style. Some of the items in our listing have been grouped under subject headings for the sake of convenience and to heighten public awareness that the kindergarten is an integral part of the elementary school. Such groupings, however, are not intended as hard and fast demarcations of subject areas.

A plethora of prepared teaching-learning kits of vastly differing quality are currently flooding the market. These commercial products are not included in the list because kindergarten children learn more from interacting with readily available play-oriented materials than from involvement in contrived kits. Furthermore, such kits often include workbook activities that research suggests are, for the most part, inappropriate for children at this level (See McAfee, p. 15).

Finally, it is hoped that teachers using this volume will be ever attuned to the educational potential of emerging materials not listed herein. While attention should be given to safety concerns of such items, the never-ending supply of scroungeable materials should be seen as a major source of opportunities for enhancing the learning of kindergarten children.

References

Bredekamp, S. (1987). *Developmentally appropriate practice in early childhood programs serving children from birth through 8.* Washington, DC: National Association for the Education of Young Children.

Chard, S., & Katz, L. (1988). *Engaging children's minds: The project approach.* Norwood, NJ: Ablex.

Krogh, S. (1990). *The integrated early childhood curriculum.* New York: McGraw-Hill Publishing Company.

Moyer, J., Eggerston, H., & Isenberg, J. (1987). The child-centered kindergarten. *Childhood Education, 63,* 235-242.

Peck, J., McCaig, G., & Sapp, M. E. (1988). *Kindergarten policies.* Washington, DC: National Association for the Education of Young Children.

Suggested Order of Acquisition

Essential Items—A Extensions—B

Note: Items, quantities and priorities suggested on the following pages of this section are to be thought of as guides rather than inventories.

SUGGESTED ITEMS	QUANTITIES A	B
I BASIC ENVIRONMENTAL EQUIPMENT		
A Furnishings		
Block storage units, each 10-12 cu. ft.	2	
Bookcase, 9-12 cu. ft.	1	
Bulletin board, cork, 20-30 sq. ft.	1	
Chairs, adult size:		
Regular, seat height 17"	2	
Rocking		1
Chairs, child size:		
Rocking, wooden 10"-12" seat		2
Straight, stacking plastic, metal tubing 11", 12", 13" seat height, variety	26	
Chalkboard, green, 12-18 sq. ft. (or wipe board)	1	
Clocks, electric wall, arabic numerals	1	
Computer & printer for teacher use	1	
Computers for child use	1	1
Cubbies with hooks and shelf, approx. 12" x 14" x 54"	26	
Cupboard units, total storage area, 125-200 cu. ft.	2	
Draperies or blinds as needed	X	
File cabinet, 4-drawer, locking		1
Floor covering:		
Carpet for 2/3 of area, indoor-outdoor type, yardage as needed	X	
Linoleum for 1/3 of area, yardage as needed	X	
Mirror, approx. 15" x 45"	1	
Mountings or frames for children's art work	5	
Paper towel holder	2	
Photocopier and telephone (ready access to)	1	
Prints and wall hangings, framed, good quality classic prints	2	
Puzzle rack	1	
Shelves, wooden with rollers (use to delineate learning centers) variety of suggested sizes 36" x 48" and 48" x 60"	6	
Sink with bubbler	1	
Soap dispenser for liquid soap	2	
Storage space unit for wood, 20" x 24" x 3 1/2' long	1	
Tables:		
Sturdy individual/partner tables, approx. 24" x 20"	7	
Sturdy work tables, approx. 30" x 30"	6	
Tape recorders:		
Child operable with earphone jack	2	
Mini-hand held for teacher use	1	
Toilet facilities:		
Lavatories, 28" high	2	
Toilets, 12"-18" high	2	
Video equipment:		
Monitor with VCR	1	
Video camera (and blank tapes as needed)		1
Wastebaskets, 10" x 14" x 18" deep or larger, with disposable liners	4	
B Cleaning equipment and supplies		
Brooms:		
Push, long handle	1	
Straw, straight, light weight, adult size	1	
Brushes:		
Counter style, 12" handle	1	
Hand/scrub style, 5"	2	
Whisk broom, small	1	
Cleanser, scouring powder, cans	4	

SUGGESTED ITEMS	QUANTITIES A	B
Dishpan, plastic	1	
Dustcloths	2	
Dustpan, rubber or rubber edged	1	
Mop, small, sponge, light weight	1	
Pails or buckets, 1 metal, 1 plastic, 2 qt.	2	
Soap or detergent, plastic containers	3	
Sponges, 1" x 3" x 4"	4	
Towel dispenser	1	
Towels, paper, carton of 3,000	5	
C First aid and health		
Blankets, cotton	26	
Choking poster, CPR poster and first aid manual, displayed and easily accessible	1	
Fire extinguisher, 6 lb. model, flat bottom	1	
First aid cabinet, stocked in accordance with regulations and lockable.	1	
May include:		
Bandages, boxes	4	
Gauze, sterile, boxes	2	
Gauze pads, sterile, boxes	2	
Gloves, latex, for use when in contact with all body fluids	X	
Hypoallergenic adhesive tape	2	
Ice pack	1	
Rubbing alcohol, bottle	1	
Safety pins, variety pack	1	
Soap:		
Antiseptic (Phisoderm™)	2	
Liquid, gal.	1	
Thermometer, digital	1	
Tweezers	1	
Paper products:		
Facial tissue, boxes	28	
Toilet paper squares and dispenser, carton of 3,000 sheets	5	
Towels (See Cleaning Equipment and Supplies)		
Rugs, plastic covered foam mats, or cots for resting, 27" x 48", or towels from home	26	
II MOTOR SKILL DEVELOPMENT		
A Gross (large) motor		
Note: All equipment over 2 feet high requires a safety surface below.		
Balance beam	2	
Balls, rubber, variety of sizes 4"-12" in diameter	5	
Bean bags	26	
Cargo net	1	
Climbing rope, 8'		1
Crawl-through tunnels and cubes, large	1	
Hollow blocks (See Representative Play and Social Awareness: Building)		
Hoops	24	
Hopscotch board		1
Ladders:		
Rope, wooden rungs with snap hitch unit, 4' x 6'		1
Wooden, approx. 6'	1	
Parachute		1
Music, aerobic, gross and fine motor activity tapes	4	
Romper stompers, pairs	4	
Sand, outdoor, coarse, lbs.	800	

SUGGESTED ITEMS	QUANTITIES A	B
Sandbox, outdoor, approx. 8' x 8' x 14' deep with cover	1	
Skipping ropes (heavyweight):		
Individual, 5 ft.	6	
Group, 8'-12'	4	
Slide, 8'	1	
Swings:		
Rope canvas, or air cushion seat, preferably hung from a tree, approx. 10' suspension	4	
Two-swing unit, approx. 10' high		1
Tricycle, 20" pedal wheel, 10" rear wheels, chain drive	1	
Wagon, rubber tires, approx. 16" x 34" x 3 1/2" deep	1	
Wands	12	
Wheelbarrow, rubber tires		1
Wooden box, approx. 14" x 24" x 8" high	1	
B Fine motor		
Bead counting frame (See Mathematics)		
Bead laces	12	
Beads, wooden, assorted shapes, box of 1,000	1	
Broken gadgets and small appliances: flashlights, clocks, things with gears, radios, etc.	X	
Clothespins (and containers)	50	
Collection of small items for multiple uses; buttons, feathers, rocks, tokens, small figurines, miniature cars, etc.	X	
Counting rods (See Mathematics)		
Cubes: 1" colored, box of 100	1	
Dressing frames	4	
Flannel board, 18" x 36"	1	
Flannel board figures, 50+ items	1	
Geoboards, variety of sizes and rubber bands	6	
Lego table or board	1	
Legos: small and large sized sets	2	
Magnetic board, 18" x 36"	1	
Magnetized figures, 50+ items	1	
Mechanical board with small baskets of bolts, nuts, keys & locks, padlocks, washers, etc.	1	
Nest of rings or boxes, 6-8 items	1	
Parquetry blocks, 1" unit, 16-36 in set, some with pattern cards	2	
Pegboards, 12" x 12"	4	
Pegs, hardwood, 1/8" diameter, 2" long, box of 1,000	1	
Puzzles:		
Floor	2	
Wooden, 9-16 pieces with knobs	8	
Wooden, 17-27 pieces	4	
Sand table, approx. 3' x 6' x 26" overall, box approx. 10"-12" deep, with cover and plastic liner	1	
Sand table filler, may rotate among play sand, rice, cornmeal, beans, etc.	X	
Sand table materials; variety may include containers, hoses, sifters, shovels, dust pan with brushes, hand held vacuum, floor mat, miscellaneous small items such as shells, cars, plastic animal and human figures, rocks, etc.	X	

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SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

A Kindergarten Group

20-24 CHILDREN—AGES 4-6

Suggested Order of Acquisition

Essential Items—A Extensions—B

SUGGESTED ITEMS	QUANTITIES A	B
Sewing materials:		
Blunt or plastic needles, pack of 5	5	
Burlap squares, approx. 5" x 5"	50	
Plastic grid squares, approx. 5" x 5"	5	
Yarn or heavy string, variety of color and texture	X	
Shape sorting box with interchangeable panels	1	
III SENSORY MATERIALS		
Measuring items (See Mathematics)		
Olfactory materials: spices, foods, greenery, etc., in plastic bottles with perforated, tightly sealed lids	X	
Sound cylinders, set of 5	2	
Sorting boxes: variety of materials for sorting by feel, size, smell, color, etc. (e.g., real and artificial flowers, feathers, wood scraps, containers of seed spices, nuts)	X	
Tactile materials: variety of sandpaper, cloth, wood, metal, sponge, etc., in containers	X	
Taste materials: sugar, flour, salt, fruit juices, etc., in plastic containers with removable lids	X	
Weighing items (See Mathematics)		
IV REPRESENTATIVE PLAY AND SOCIAL AWARENESS		
A Building		
Blocks:		
Hollow, 4 1/2" x 11" x 11", basic unit	24	
Interlocking, large floor		60
Unit floor, basic unit, assorted shapes and sizes	300	200
Block accessories:		
Figures, 3D animals and people, 3"-8" tall	8	
Signs, buildings and trees	X	
Vehicles and machines: trucks, trains, planes, boats, hoists, 3"-12" in length	4	
Boxes: variety of sizes	X	
Tools for woodworking:		
Bits, 1/4", 1/2" and 3/4"	1	
Brace, adult size, 1 1/2 lbs.	1	
Coping saw, wooden handle	1	
Coping saw blades	3	
Hammers, 13 oz., 16 oz., flat head with claws	2	
Hand drill and drill sets	1	
Nails, 3d, 6d, 7d, lbs.	5	
Pliers, with wire cutter	11	
Saws, crosscut, variety of real 14" blade, 18" blade, 8 teeth per inch	2	
Screwdrivers, 8", 12", regular and Phillips	2	
Screws, steel, flat head, assorted sizes, box of 50	1	
Try square, 8" blade		1
Tool storage unit, wall hangings with door, approx. 24" x 36" and 6" deep	1	
Wood:		
Balsa wood blocks; variety of sizes	X	
Mill ends, flat, any soft wood, cu. ft.	6	
Lumber footage, 3/4" x 3', from 2"-8" wide pieces	30	
Disks, 3/4" thick, 5"-6" diameter	8	
Dowels, 3' lengths, 1/2" and 3/4" diameter	8	
Tree stump	X	
Workbench, 24" x 42" and 26" high, with vises	1	
B Doll play		
Carriage or stroller, 24"-27" handle, sturdy	1	
Clothes with variety of fasteners	12	
Doll house	1	
Doll house family, anti-bias sets	2	
Doll house furniture set	1	
Dolls, soft, unbreakable, 10"-40", anti-bias (gender, handicapped, and ethnic variety)	4	
C Dress up		
Dress-up props, both genders, suggestive of roles or careers as needed. (e.g., pilot, astronaut, bus driver, cowboy, doctor, farmer, florist, miner, mother, father, firefighter, etc.)	X	
Play accessories: Gloves, goggles, bags, jewlery, shoes, ties, etc.	X	
Prop kits for: Shoe store, grocery store, beauty shop, library, doctor's office, restaurant, etc. (See below for examples of office props and store props.)	X	
Rack and hangers for dress-up clothes, 40" uprights with 36" connecting pole	1	
Suitcase or cabinet for accessories, 30" x 14" x 15"	1	
D Office supplies for representative play:		
Briefcase	1	
Calculator or adding machine	1	
Computer and printer with appropriate software		1
Miscellaneous writing supplies such as: message pads, envelopes, labels,		

SUGGESTED ITEMS	QUANTITIES A	B
paper, pencils, pens, markers, sticky notes, etc.	X	
Scotch tape	2	
Stapler and staples	1	
Tape recorder and blank tapes	1	
Telephone, old from phone company and phone book	1	
Typewriter, old	1	
E Store and storekeeping supplies for representative play:		
Calculator or adding machine	1	
Cash register	1	
Checkbook	1	
Containers: cereal and frozen food boxes, food cans, grocery bags, baskets, old receipts, etc.	12	
Coupons	X	
Newspaper ads for groceries	6	
Plastic food items	4	
Play money (See Mathematics)		
Shopping cart	1	
F Playhouse cleaning equipment:		
Broom, 36" height	1	
Carpet sweeper that really picks up dirt		1
Clothes bar, 30"-36" high	1	
Dust mop, 36" handle	1	
Dustpan and small brush	1	
Hand held vacuum	1	
Laundry set, old-fashioned wash tub and board	1	
Sponge mop, 36" handle	1	
Sponges	2	
Washer and dryer unit, 12" x 16" x 24"		1
G Playhouse furniture and equipment		
Bed, wooden, approx. 28" x 14" x 10" high	1	
Clothesline or rack with clothespins	1	
Cupboard, wooden, approx. 22" x 20" x 40" high	1	
Cutlery, aluminum, 4"-5" long, place setting	4	
Dishes:		
Cooking set, 6-8 items	1	
Tea set, unbreakable	1	
Doll high chair	1	
Iron, wooden or metal, non-electric	1	
Ironing board	1	
Linens: hot pad, aprons, placemats, towels, etc.	X	
Refrigerator, wooden, approx. 12" x 24" x 36" high	1	
Rocking chairs, 10"-12" seat height (See Basic Environmental Equipment)		
Sink, wooden, approx. 12" x 27" x 24" high, with removable plastic pail	1	
Table and two chairs, table 18"-20" high	1	
Telephone (See Language Arts)		
Vases and baskets	X	
H Puppets		
Puppet theater	1	
Puppets: finger, rubber, cloth, child-made or purchased human and animal	X	
Puppets: hand, rubber, cloth, human and animal	8	
V ART AND CONSTRUCTION		
Alcohol, denatured, gal.	1	
Brushes, paint:		
Flat, 3/4" x 1 1/2" and 3/4" x 4"	6	
Round, for easel 1 1/4" bristles, 9" handle	12	
Watercolor	6	
Chalk:		
Colored, sticks, regular size and fat variety	12	
White, dustless, sticks, boxes	6	
Chalkboard (See Basic Environmental Equipment)		
Clips, heavy, 2 1/2" x 2 3/8", for easel	8	
Cloth:		
Burlap and/or heavy weight mesh, yds.	2	
Material: chintz, felt, paper cambric, yards	2	
Collage materials: rick rack, ribbon, feathers, net, doilies, glitter, yarn, lace, old magazines, etc.	X	
Cookie cutters for play dough	4	
Craft sticks, box	1	
Crayon holders	2	
Crayons:		
Hexagonal, 4" long, assorted colors, gross	1	
Regular, assorted colors, box	1	
Easels, double adjustable height	1	1
Erasers, sponge	4	
Flour, 5 lb. sack for play dough and cooking	10	
Food coloring, set	2	
Glue, all-purpose, white, gallon	2	
Hole punch	2	
Marking pens, non-toxic, box	6	
Needles, #20 tapestry, pkg. of 6	2	
Paint:		
Finger paint, qt. jars	12	
Poster paint	18	
Water color sets	24	
Paint jars with plastic covers	16	
Paper:		
Brown, wrapping, 45 lb. roll with dispenser	1	
Construction, colored, 12" x 18", pkg. of 50 sheets	20	
Crepe, 20" x 7 1/2" pkg.	2	
Frieze, one side glazed, the other rough, 34" x 180", roll	1	
Manila, 12" x 18" reams	6	
Poster, colored, 12" x 18" pkg of 100	4	
Tagboard, medium weight, 24" x 36" sheets	10	
Tissue, colored 20" x 30", pkg. of 24 sheets	4	
News, unprinted, 18" x 24" pkg of 100 sheets	15	
Paper bags, approx. 18" x 24"	50	
Paper brads or fasteners, boxes	2	
Paper clips, box of 100 assorted	4	
Paper cutter, 24" blade	1	
Pencils, soft, thick lead, no eraser	12	
Pencil sharpener	2	
Pins:		
Safety, assorted sizes, box	2	
Straight, common, box of 300	2	

SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

A Kindergarten Group

20-24 CHILDREN—AGES 4-6

Suggested Order of Acquisition

Essential Items—A Extensions—B

SUGGESTED ITEMS	QUANTITIES A	B
Pipe cleaners, assorted colors, pkg.	2	
Play dough, made or purchased as needed	X	
Rolling pins for play dough	4	
Rubber bands, assorted sizes, box of 100	1	
Rulers (See Mathematics)		
Salt for play dough and cooking, 5 lb. bag	5	
Sandpaper, grades 000 to 3, pkg. of 10 sheets	1	
Scissors:		
Adult size, pair	2	
Children's forged steel, majority semi-pointed, 2-3 pointed, 1 left-handed, 1 plastic	24	
Double handled training, children's	2	
Staple remover	2	
Stapler	2	
Staples, box	2	
String, carpet wrap, colored, 1/2 lb. spool	1	
Tapes, adhesive:		
Masking, 1/2" wide x 60 yd. rolls	4	
Mending, Scotch permanent, transparent, 1/2" wide x 60 yd., rolls	2	
Mystic, cloth/plastic, 3" wide x 108" roll	1	
Thread, black and white, #60, spools	2	
Thumbtacks, solid heads, 7/16" lg., box of 100	3	
Toothpicks, for painting, collage and sculpture, box	3	
Trays, lunchroom style, flat, variety of sizes	12	
Water color markers, non-toxic, water soluble, boxes	6	
VI MUSIC		
Books, musical games, rhythms, songs	6	
Instruments:		
Autoharp, 12 bar		1
Bells, sets	1	
Chinese tom-tom		1
Cymbals		2
Drums:		
Barrel	1	
Child-made	X	
Hand snare		1
Tom-Tom	1	
Jingle clogs	4	
Maracas, pairs	2	
Piano, upright, spinet or electronic keyboard	1	
Rhythm sticks, pairs	12	
Step bells	1	
Tambourine	1	
Tone blocks	2	
Xylophone	1	
Recordings, a variety of music appreciation, musical games, rhythms, songs and stories	8	
Record player, portable, child operable	1	
Tape cassettes, for recording and listening	8	
VII LANGUAGE ARTS		
Books:		
Access to children's and professional libraries	X	
Big books with multiple miniature copies	3	
Chart, paper, large, for experiences	2	
Flannel board with stories and storytelling pictures	1	
Picture-story, in classroom	50	
Reference, in classroom		5
Computers (See Basic Environmental Equipment):		
Keyboard: child friendly	1	
Software: desktop printing, child word processing	1	
Frames, bingo and lotto type with birds, food, clothing, zoo animals, insects, etc.	4	
Frames, sorting by initial or rhyming sounds	2	
Games: completion, hidden parts, and story sequence, picture and lotto types	6	
Games, matching cards of animals, flowers, cars, etc.	4	
Letters of the alphabet, one upper, one lower case, wood, foam or plastic with magnetic insets	2	
Listening station with 6 earphones	1	
Paper for writing, reams	6	
Recordings, stories and songs	10	
Sentence strips, pkg.	1	1
Telephones, dial or touch tone	2	
View Master™	1	
View Master™ frames or reels	6	
Writing tools, miscellaneous	30	
VIII MATHEMATICS		
Bead counting frame, approx. 18" x 24"	1	
Blocks: attribute, design, domino, number, etc.	4	
Calendar, large with removable numerals	1	
Clocks:		
Alarm, battery operated	1	

SUGGESTED ITEMS	QUANTITIES A	B
Alarm, hand-wound	1	
Plywood, large with gear operated hands	1	
Plywood, large with manually operated hands	1	
Counting cubes, 1" x 1" x 1", set of 100	1	
Counting rods, 10 units in a set, basic unit, 1" x 1" x 3"	2	
Cuisenaire rods, set	2	
Games: bead and number cards, card matching, numeral to number, dominoes, lotto, number bars, number tray, scoring games such as adhesive ball darts, shake the dice and play, spin the dial and play, walk-on number line, etc.	6	
Geometric solids, wooden, 3" units, approx. 6 items	1	
Logic or attribute blocks	1	
Measures:		
Meter stick, 90 centimeters	1	
Rulers, 30 centimeters and 1 foot	4	
Tape measure, centimeter and inch markings	1	
Yard stick	1	
Liquid and dry, each: 1/4 and 1/2 tsp., tbsp., cup, pint, quart, gallon	1	
Numerals, felt, wood or plastic with magnets	2	
Play money, child made	X	
Play money, commercial with real detail, sets	1	
Scales:		
Mathematical balance	1	
Pan balance	1	
Platform, with height measure attached (access to)	X	
Unifix cubes, set	1	
Weights for scales, various amounts, sets	1	
IX SCIENCE		
Ant farm	1	
Aquarium, with accessories	1	
Beehive, window model		1
Cages:		
Animal, 10" x 18" x 14" high, all metal with exercise wheel and water bottle	1	
Animal, 36" x 36" x 36", wooden frame, removable tray		1
Cocoons, butterfly, moth	3	
Cooking equipment: aprons, bowls, cookbook, sauce pans, crockpot and cooking ingredients, as needed	X	
Electrical kit, batteries, bells, switches, wires, bulbs		1
Eyeglass lenses, old, for magnifying	X	
Food for:		
Chickens, gerbils, hamsters, mice, etc.		
Fish, birds, etc., lbs.		
Garden tools, sturdy, steel, 36" handles, set	1	
Globe, simple, 9" diameter or larger	1	
Grow chart, height, weight	1	
Hose, 1/2" diameter, 36" long, for siphon		1
Incubator	1	
Jars, clean, plastic or glass, with covers, 6 oz. to 1 qt.	6	
Kaleidoscopes, variety	4	
Magnets:		
Bar	2	
Horseshoe	1	
Ring, plastic coated, 1" in diameter	6	
Spot, 1/4" x 1/4" x 1/4", set in plastic	12	
Magnifying glasses, variety	3	
Outdoor garden	1	
Pets:		
Baby chicks		
Canary		
Ducklings		
Hamsters		
Hen, setting		
Gerbils		
Goldfish		
Parakeet		
Rabbits		
White mice or rats		
Plants	4	
Prisms, variety	4	
Syringe, large bulb for watering plants		2
Terrarium, 10" x 18" x 14" high		1
Thermometers, indoor/outdoor, large figures, red indicator and a hand operated model	2	
Watering cans, 1 qt., long spout, heavy flat base	1	
X SNACKS AND SPECIAL OCCASIONS		
A petty cash fund of a stipulated amount ($50.00 to $100.00) or a write-in bill form should be available for the purchase of special occasion, emergency and "best buy" items.		
Cutlery:		
Forks, small, sturdy, plastic, gross	1	
Knives, two for cutting, four for spreading	6	
Spoons, 2-mixing, 2-serving, 2-tablespoons	6	
Teaspoons, small, sturdy, plastic, gross	1	
Electric hot plate and oven (or access to)	1	
Flag, national, approx. 2' x 3'	1	
Paper service:		
Cups, 5 oz., pkg. of 100	20	
Napkins, plain, cocktail size, pkg. of 250	5	
Plates, 6" in diameter, pkg. of 100	3	
Straws, drinking, pkg. of 500	2	
XI RECORD KEEPING		
Clipboards with pencils attached and peel-off labels for anecdotal records	X	
Handbook with forms and information (e.g., health, emergency care, background, school policies and procedures, etc.)	30	
Software, word processing and data packages	1	

SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

An Early Elementary School Group

20-30 CHILDREN—AGES 6-8

Mary Lu Syllaba

Infancy/Early Childhood Committee Chairperson, James Hoot

Although each child's growth pattern is unique, certain basic traits and growth sequences are characteristic of each developmental stage. An understanding of these shared characteristics is important when selecting appropriate materials and equipment for the elementary classroom.

For 6- to 8-year-old children, learning is a natural and exciting process. It is most likely to occur when the information presented is meaningful and culturally relevant to the learner. Children during these years also experience a desire to be accepted by those around them, both adults and peers. Their involvement with others and their environment frequently takes place during play. For children, play is serious business in which they learn about their world, how to function in it and how to come to terms with it.

INTRODUCTION
I Basic Environmental Materials/Equipment
II Basic Expendable Materials
III Maintenance Materials/Equipment
IV Health and First Aid Materials/Equipment
V Perceptual-Motor Materials/Equipment
VI Media/Computing Materials/Equipment
VII Arts and Crafts Materials/Equipment
VIII Language Arts Materials/Equipment
IX Mathematics Materials/Equipment
X Music Materials/Equipment
XI Science Materials/Equipment
XII Social Studies/Development Materials/Equipment
XIII Recyclable Materials

Children in this age group need frequent sustained opportunities for movement. Activities incorporating music help to develop fine and gross muscle control, strength and endurance. Movement activities may include vigorous, sometimes boisterous, individual and group play that involves running, jumping, climbing, balancing, throwing, catching and kicking. Sociodramatic play and rhythmic activities, as well as fine motor activities such as lacing and threading, are both enjoyable and necessary for balanced development.

Pro-social skills are enhanced by play and practice in team sports and other organized activities. Group loyalty increases steadily from ages 6 to 8, as children are increasingly influenced by the thoughts and actions of peers. Interest in the group expands during this time to include other people, places and events. Consequently, children display increased interest in pleasing others, especially adults, and in seeing that rules are followed. Encouragement and guidance from significant adults is crucial at this time.

As with their physical and social skills, children's interests at this age expand rapidly to include a wide range of topics. Imaginative play remains important, although discernment of the differences between fact and fantasy is becoming more sophisticated and complex.

While moving away from concrete to abstract thinking, 6- to 8-year-olds continue to need concrete experiences and manipulatives to assist in concept formation. Since children at these ages learn particularly well through their senses, they should be provided with abundant multisensory experiences. They usually work willingly, accepting challenges enthusiastically. By the later stages of this age span, children have progressed well along the way to mastery of the basic skills, concept formation and problem-solving abilities that will serve them throughout their adult lives.

IMPORTANT: Currently the most prevalent elementary school organizational pattern for 6- to 8-year-olds is the self-contained classroom with one teacher and 20 to 30 children, although one can find team teaching of larger groups, multi-age groups, departmentalization and various other organizational schemes. Using this list as a planning resource, teachers can make additions, adjustments and deletions to plan for their unique situations, thus meeting the needs of the individual students in their particular classroom settings.

NOTE: Items and quantities suggested on the following pages of this section are to be thought of as guides rather than inventories.

SUGGESTED ITEMS	QUANTITIES
I BASIC ENVIRONMENTAL MATERIALS/EQUIPMENT	
Air conditioner (where appropriate)	X
Boards:	
Bulletin	X
Chalk, movable, stationary and lap boards	X
Dry erase/markers (set)	1
Flannel	1
Magnetic	1
Peg board	1
Book racks/easels	2
Cabinets, storage	1
Carpeting	X
Chairs, adult size:	
Rocker	1
Straight	1
Chairs, child size:	
Beanbag	1
Rocker	1
Straight	20
Chart holders	1
Clock, wall	1
Drapes	X
File cabinet	1
Flags:	
State	1
United States	1
Floor pillows	3-5
Microcomputer/Software	X
Mirror, full length	1
Pencil sharpener	1
Screen, permanent projection	1
Sink	1
Soap dispenser, liquid	1
Storage bins	2
Tables, adjustable, according to need: trapezoid, round, oblong	10-14
Towel dispenser	1
Wastebaskets	2
II BASIC EXPENDABLE MATERIALS	
Brads	2
Chalk (box)	2
Chalkboard erasers	12
Chart tablets, large, rules	3
Colored folders (100 per pkg)	2
Fasteners, paper, 1", 3/4", box of 100	4
Gummed labels, boxes	2
Markers, felt tip, set of 8 assorted colors	2
Metal rings, 1", 1 1/2", 2", box of 100	1
Paper:	
Story, 12" x 18" - plain space at top for illustrations and ruled lower half for story, reams	8
Typing, reams	2
Writing:	
6" x 10 1/2" with 1/2" rulings, reams	2
8" x 10 1/2" with 3/8" rulings, reams	2
9" x 12 with 1" rulings, reams	2
9" x 12" without rulings, reams	2
9" x 12" imaginary line paper	3
Paper clips, box of 100	3
Pencil erasers, soft rubber, doz.	2
Pencils:	
Beginners, #308, Dixon, for first year, doz.	3
Laddie, #304, Dixon, for second year, doz.	3
Reinforcements, box of 200	2
Rubber bands, 4 oz., box of assorted sizes	2
Rubber cement	4
String ball	1
Tagboard:	
Manila, 12" x 18", pkg. of 100 sheets	3
White, 12" x 18", pkg. of 100 sheets	1
Tapes, adhesive:	
Masking, rolls	2
Mending, box	1
Scotch, magic, transparent, 1/2" x 700" with dispenser	4
Thumbtacks, boxes	3
Transparencies, box of 100	1
Transparency pens:	
Permanent	1
Washable	2
III MAINTENANCE MATERIALS/EQUIPMENT	
Brooms:	
Lightweight, straight, adult size	1

SUGGESTED ITEMS	QUANTITIES
Push, long handle	1
Brushes:	
Counter style	1
Hand scrub	4
Buckets, flat bottom	2
Cleanser, cans	4
Dishpan, plastic	1
Dustpan	1
Mop, sponge	1
Soap:	
Flake or granule, box	1
Liquid, gal.	1
Sponges	3
Towels, paper, case of 3,000	4-8
Vacuum cleaner	1
IV HEALTH AND FIRST AID	
Items available in nurse's office or central supply area or First aid cabinet stocked in accordance with individual school regulations or	1
Bandages, plastic strips, boxes	2
Facial tissue, boxes	10-12
Gauze, sterile, roll	1
Gloves, plastic	X
Instant-ice pack	1
Soap, medicated, bars	2
Tweezers	1
V PERCEPTUAL-MOTOR	
Balance beam	1
Balls:	
Beach, plastic	3
Foam, varying sizes	3
Rubber, varying sizes	6
Soccer	3
Bean bags	6
Climbing apparatus, indoor/outdoor, for movement exploration	1
Cones (for obstacle courses)	4-6
Drum	1
Hoops	10
Horizontal bars, set	1
Horizontal ladder	1
Jump ropes:	
Chinese	2
Short/long	4-6
Launchers (for bean bags)	2
Parachute	1
Records and cassette tapes, for movement	X
Rhythm sticks, prs.	6
Ribbon wands	X
Scoops (for balls)	4
Slide	1
Swings	1
Tarpaulin	X
Tires, old automobile, bicycle, airplane	X
Traveling rings, set	1
VI MEDIA/COMPUTING	
Audio filmstrip player	1
AV carts	1
Books:	
Children's	40
Reference	X
Book racks	2
Book trucks	2
Cameras:	2
Instamatic/film	X
Instant developing/film	X
35mm/film	X
Cassette recorder:	
Dual deck	1
Mini	1
Standard	1
Cassettes, listening and recording	X
Compact disc player/Compact discs	1
Easel (for big book display)	1
Films	X
Filmstrips	X
Filmstrip viewers	X
Headphones	6
Laminating machine/Laminating film (access to)	X
Language master w/cards	1
Listening station	1
Microcomputers/with instructional software:	
CD-ROM Drive	X
Paper	X
Printers	X
Projectors (access to):	
Filmstrip	X
Opaque	X
Overhead	X
Slide	X
Screen, portable	X
Television (access to)	X
Transparency films	X
Video cassette recorder	1
Video cassettes (for viewing and recording)	X
Video monitor	1
Video projectors	1
VII ARTS AND CRAFTS	
Aluminum foil	X
Aquarium gravel	X
Brushes:	
3/4" bristles, 12" and shorter handles	12
1" bristles, 12" and shorter handles	12
Chalk, non-oil base, assorted colors, box	1
Clay, mixed, 1 lb. pkg.	25
Tools (for working clay)	X
Cloth:	
Burlap, yds.	2
Cotton, yds.	2
Felt, 1 pkg.	1
Collage materials, assorted	X
Contact, self-adhesive plastic, yds.	6
Containers, 1/2 pt., or pt., plastic, with covers, for paint	12-18
Crayons:	
Large, mixed colors, box of 8	15
Regular, mixed colors, including multiethnic, box of 8	15
Detergent powder, box	2
Drying rack	1
Easels:	
Standing	2
Table	6
Garbage can, plastic, with cover, and linear, for clay	1
Glue:	
Elmer's™, white, gal.	1
Rubber cement, qt.	1
Semi-liquid paste, gal.	1
Laundry starch, liquid, for making finger paint or papier-mâché	X

SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

An Early Elementary School Group

20-30 CHILDREN—AGES 6-10

SUGGESTED ITEMS	QUANTITIES
Looms, for loops	5
Loops, large, in assorted colors	X
Markers:	
Thinline, assorted colors, box	8
Wide tip, permanent, assorted colors, box	8
Wide tip, water color, assorted colors, box	8
Muffin tins for use as paint containers	X
Needles:	
Crewel and embroidery	X
Large eye, pointed, 3" and 5", for weaving	X
Paint:	
Finger, 1-qt. jars, assorted colors	6
Poster, assorted colors, qts.	8
Powder, assorted colors, lbs.	12
Watercolor, assorted colors	12-18
Paper:	
Butcher paper rolls, assorted colors	X
Construction, 12" x 18", assorted colors, pkg.-100	5
Corrugated, 4' x 25', roll, assorted colors	3
Finger paint, 16" x 22"	4
Manila, 9" x 12", ream	6
Manila, 12" x 18", ream	3
Mural, 36" wide, roll	1
Newsprint, 9" x 12", white and assorted colors, pkg. 100 sheets	5
Newsprint, 18" x 24", 100 sheets	4
Paper bags, assorted sizes	30
Poster, 9" x 12", pkg. of 100	3
Poster, 12" x 18", assorted colors, pkg.	2
Tissue paper:	
Art kraft, assorted colors	1
White tracing	2
Paper cutter:	
25" (access to)	X
12"	1
Paper plates, assorted sizes	X
Paper tissues, box	5
Papier-mâché, instant	X
Pencils, colored and standard	X
Pens, teacher	
Ballpoint	3
Fine tip marker	3
Pipecleaners, assorted colors	X
Play dough, assorted colors	X
Sand, colored	X
Scissors:	
Left-handed/right-handed	20
Teacher's shears	2
Storage rack	1
Soda straws, box	5
Staplers:	
Long arm or reach, 12" or more (access to)	1
Small	1
Standard	1
Staples, assorted sizes, boxes	2
Stencils	X
Wall covering, plastic, odds and ends and sample books	X
Wax paper	2
Woodworking:	
Brace, non-ratchet and bits, 1/4", 1/2", 3/4", 1" set	1
Carpenter's workbench with vise or 2-3 sturdy wooden tables or low, broad topped saw horses with vises	X
C-clamps, 4"-6"	2
Claw hammers, 13 to 16 oz.	2
Dowel rods, 1/4", 1/2", 3/4", 1"	8
File, wood, half round	1
Hand drill, 1/4" capacity and bits, set or file point of nail for smaller size	1
Lumber:	
Mill-ends	X
Pine, white surfaced on 4 sides, assorted pieces	X
Nails: finishing, blue lath, fine shank, smooth wire, roofing - with large heads, in 1", 1 1/2", and 2" sizes	X
Pliers, 6"	1
Rasp, medium	1
Rulers, inch and centimeter markings, 12" long	3
Sandpaper, fine, medium, coarse	1
Saws, crosscut, 18" blade, coping	3
Screw eyes, box	X
Screwdrivers, Phillips and straight	2
Screws, assorted sizes, boxes	X
Shellac, white, qt.	1
Smoothing plane	1
Tongue depressors and popsicle sticks (assortment)	X
Turpentine, qt.	2
Wood or wood substitutes:	
Balsa, small pieces for planes and other models	X
Tri-wall, sheets, 4' x 4'	X
VIII LANGUAGE ARTS	
Alphabet, wall cards, set and individual desk size	2
Bookends, prs.	2
Book holders or racks for small books and big books	2
Books:	
Big books and accompanying copies	10
Dictionaries	2
Literature	50
Paperback	X
Read-along (books with complete script on records or cassettes)	X
Trade books, multiple copies	X

SUGGESTED ITEMS	QUANTITIES
Chart tablets	X
Flash cards, blank	X
Games, related language arts:	
Board	8
Card	8
Letters, manipulative letters, various types, sets (flannel, magnetic, etc.)	2
Pocket wall chart	1
Puzzles: sequence, picture and floor	10
Recordings, cassette tape and records, of stories and poems	X
Rubber stamps, alphabet, set	2
Sentence strip rolls and strips	X
Tactile alphabet cards, set	2
Typewriters (for children's use)	X
IX MATHEMATICS	
Blocks:	
Attribute	6
Base ten	2
Counting	2
Cuisenaire rods, set	1
Dominoes, large set	1
Number	2
Pattern	1
Calculators	5
Cash register, toy	1
Clock:	
Individual	20
Large	1
Counting frames	X
Counting sticks, disks and assorted counters	X
Dice, prs.	10
Flannel board	1
Flannel board cut-outs	X
Flash cards, operations and blank	X
Floor graph	1
Games:	
Bingo, Dominoes, Quizmo, etc.	6
Geoboards and colored rubber bands	10
Graph paper	X
Magnetic board	1
Measures:	
Linear:	
12" rulers with 1/4", 1/2" and 1" markings	2
Meter stick, large, 90 centimeters	1
Meter stick, small, 30 centimeters	1
Tape measure with inches and centimeter markings	1
Yardstick	1
Liquid and dry: cup, pt., qt., gal., plastic set	1
Scales, English and metric	2
Thermometers, Fahrenheit and centigrade, indoor and outdoor	1
Number lines, large and individual	1
One hundred chart	1
Pegboards and pegs	X
Place value mats	X
Rubber stamps (clock face, place value, number and signs)	X
Tangrams	X
Toy money, varying denominations	X
Unifix cubes	X
X MUSIC	
Autoharp, 12 bar	1
Bell sets:	
With handle	1

SUGGESTED ITEMS	QUANTITIES
Wrist bells	3
Sleigh bells	1
8 note step	3
Bells, single	3
Castanets, hand, pairs	2
Clappers	2
Cymbals:	
7", brass, pair	1
Finger, pairs	2
Drums:	
Bongo	1
Snare	1
Tom-tom	1
Guiro tone block	1
Listening station equipment	1
Manipulative scale blocks, set of 8	1
Maracas, pairs	2
Music books:	
Rhythm	3
Song	6
Piano (access to)	X
Records:	
Exercise	4
Folk dance	4
Rhythm	6
Singing	8
Rhythm sticks, pairs	6
Sand blocks, pairs	3
Tambourine	1
Teaching aids:	
Chromatic pitch pipe	1
Music charts	X
Tone blocks	2
Triangle	1
Xylophone	1
XI SCIENCE	
Ant farm	1
Aquarium with glass cover	1
Balloons	10
Bulbs, garden	8
Cages with removable bottoms, for birds, hamsters, gerbils, rabbits	1
Containers, clear plastic with cork or screw-top or plastic cover	X
Cooking equipment:	
Baking pans:	
9" x 13" cake pan	1
8" x 8" cake pan	1
Bread pan	1
Cookie sheet	1
Cupcake pan	1
Pie pan	1
Round layer cake pans (8")	1
Bowls:	
Glass mixing bowl (for watching, serving, two sizes)	2
Plastic mixing bowl (three sizes, with lids)	3
Electric skillet	1
Hot plate	1
Ladle	1
Measures:	
Cups	X
Spoons	X
Microwave oven (access to)	X
Paper or plastic plates, cups and eating utensils	X
Sauce pans with lids:	
3 qt.	1

BEST COPY AVAILABLE

An Early Elementary School Group

20-30 CHILDREN—AGES 6-10

SUGGESTED ITEMS	QUANTITIES
4 qt.	1
Spatula	1
Spoons for mixing	X
Electric bell with wire, dry cells, set of 2	X
Flower containers: boxes, pots, and vases in various sizes	X
Food for pets	X
Garden equipment:	
Hoes	3
Hose, 20'	1
Rakes	3
Shovels	3
Spade	1
Sprinkler	1
Trowels	2
Watering cans	2
Incubator (access to)	X
Insect cages	1
Iron filings, 20 mesh, pkg.	1
Magnets:	
Bar	2
Horseshoe	2
Magnifying glasses:	
Large, on stand	1
Small with handle	1
Microscope (access to)	X
Preserving fluid, for specimens, qt.	1
Prisms	2
Pulleys	X
Refrigerator (access to)	X
Rocks and minerals collection	X
Seeds from flowers, fruits and vegetables	X
Slides	X
Terrarium with glass cover	1
Test tubes and beakers	5
Timers, egg and clock types, 1 each	2
Tuning fork	1
XII SOCIAL STUDIES/DEVELOPMENT	
Block accessories:	
Human and animal figures	X
Vehicles and machines	X
Blocks, table and floor sets	X
Community resource file	X
Construction toys, Legos, Lincoln logs, etc.	X
Dramatic play materials:	
Doll house	X
Dolls, baby, multi-ethnic, male and female	X
Housekeeping props:	
Clothes, dishes, etc.	X
Kitchen furniture, dress-up	X
Playstore and accessories	X
Films and video cassettes: careers, ecology, families, government, industries	X
Games, board and individual	X
Globe	1
Magazines	X
Maps and atlas: community, state, nation (political, physical), world	X
Newspapers, adult	X
Newspapers, children's	X
Puppets	X
Puppet stage	1
Water/sand table	1

RECYCLABLE MATERIALS
SUPPLY ACCUMULATED

The following list of recyclable or throw-away materials will be useful for making creative teaching aids and games, for use in arts and crafts projects, for storage of other materials and for a variety of other classroom and home uses. All items should be clean and free from rough, sharp edges.

Buttons
Candy boxes with partitions and trays
Cardboard items: boxes, carton, corrugated and other sheets, tubing from paper rolls, etc.
Catalogs
Cellophane grass used in packaging
Coffee cans
Egg cartons
Facial tissue boxes
Fruit boxes with partitions and trays
Gift wrapping paper, odds and ends
Hosiery boxes, novelty
Magazines for pictures, colored paper, letters and words
Margarine and cottage cheese containers with lids
Metal boxes, containers for candy, cookies, fruitcake, etc.
Newspapers:
Supplements for colored pictures
Ad sections for painting on, papier-mâché and stuffing
Plastic items: bottles, boxes, cups, meat and fruit trays, lids and tops, etc.
Ribbon bits and lengths
Scraps of carpeting, contact paper, cloth, felt, sandpaper, yarn, etc.
Spools, large and small
Styrofoam packing
Tennis ball or similar cans
Tin cans, graduated sizes
Wallpaper and vinyl covering, leftovers and display books

SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

A Later Elementary School Group

20-30 CHILDREN—AGES 8-10

L. Ruth Frederick

Later Childhood/Early Adolescence Committee Chairperson, Judith Reiff

All children are unique and bring different learning styles, experiences and strengths to the classroom. Respect for this wealth of individuality can bring cohesiveness to the classroom and encourage understanding, or least acceptance of, others for who and what they are. At the early childhood level (ages 6-10) group interactions and play situations are paramount to learning. And it is often through such interactions that differences, as well as similarities, are realized. Consequently, allowing for play and interaction in the learning environment is not only an incidental experience, but also a planned activity that requires materials and equipment that enhance children's opportunities to develop socially, emotionally, academically and physically.

Section A: Classroom Facility Needs
I BASIC ENVIRONMENTAL EQUIPMENT
II BASIC EXPENDABLE MATERIALS
III HOUSEKEEPING EQUIPMENT AND SUPPLIES
IV HEALTH AND FIRST-AID MATERIALS
V PSYCHO-MOTOR EQUIPMENT
Section B: Media Center Needs
VI AUDIOVISUAL MATERIALS
Section C: Academic Area Needs
VII ARTS AND CRAFTS
A RECYCLABLE MATERIALS
B WOODWORKING
VIII LANGUAGE ARTS
IX MATHEMATICS
X MUSIC
XI SCIENCE
XII SOCIAL STUDIES - CONCEPTS

One need only review Erikson, Kohlberg, Bandura, Maslow or Piaget to realize the developmental stages, changes and skills that are being developed during these crucial years. The child's world view is moving from a self-love concentration, toward a broader stage of development in which the child is aware of others outside of, or besides, themselves. They desire the security of being accepted by peers, as well as by meaningful adults. It is often through the interaction of play activities and group experiences that these desires are fulfilled.

Socially, the child is learning to function within the parameters of group situations, giving and taking for the stability of the group rather than self. Organized team participation and group activities are necessary for the development of social skills in early childhood. Group acceptance and loyalties are demonstrated through adapting to the peer culture, aligning with the likes and dislikes of the group in food, dress, attitudes, activities, in-group slang and recreation. Heroes and heroines are a major influence on social development, whether imagined (i.e., cartoon characters, movie or T.V. portrayals) or real (i.e., a specific occupational individual or significant adult who is greatly admired). Rules are expected to be strictly enforced and the group's code becomes important to uphold. Children need to be

accepted by the group, know their position within the group, and receive positive verbal and non-verbal communication for their contribution to the group—whether from peers or significant adults.

Emotionally, the child is developing self-concepts influenced by others' responses to the child's abilities, achievements and accomplishments. The ability to interact within the group, to abide by group rules and to feel accepted and secure within the group affects emotional stability. Although it is difficult to divorce social and emotional development, the major emphasis in emotional development is being accepted by others, receiving encouragement from others and being assured that the individual has a significant contribution to give, or attribute to share, with the group. Such acceptance enhances self-worth and a positive self image. Being chosen to be on the team, sharing a new activity with the group or discovering an innovative way to play with existing equipment are all a part of this broadening development.

Academically, children are innately curious at this stage, wanting to explore and discover everything they encounter. They are learning basic skills and require manipulatives to enhance understanding. Make-believe play is creatively expressed, assigning new meaning to old objects. This type of play interaction also enhances the development of abstract thinking skills from concrete objects and materials. Multisensory experiences challenge children's natural curiosity, and equipment that utilizes hands-on activities is most necessary in helping them develop problem-solving skills. These early years are key to developing the learning skills that are the tools for future achievement and success.

Physically, children are developing both gross and fine motor skills during these years, and numerous games, activities and manipulatives are needed to encourage such development. Running, jumping, climbing, throwing, catching and kicking are vigorous activities that build strength and endurance, as well as large muscle coordination. Dramatizing, drawing, painting, lacing and manipulating small objects (i.e., puzzle pieces, games and pegs) are means of developing fine muscle coordination and abstract thinking skills.

Later childhood is a challenging period of development. The child is a willing, eager learner when motivated with materials and equipment that are appropriate to individual ability and achievement levels. The following list has been developed for teachers as a suggested resource guide of materials and equipment that are an underlying support in enhancing the development of children. It is a fact that each child comes to us with unique strengths and weaknesses. Thus, this list cannot be exhaustive; rather, it is offered as a means of helping teachers gather, collect and store basic materials that will be useful in enriching the development of most children.

The list has been divided into three sections: classroom facility needs, media center needs and academic area needs. The areas within each section have been rated according to those necessary for the classroom, those suggested as supplementary materials for use within the classroom and those that are practical but not necessarily used by the teacher. Also, certain items were suggested to be in the school facility, especially within a specific center or area, but not specifically for or in the classroom. Areas covered include:

IMPORTANT: These guidelines are being considered for the self-contained elementary classroom (one teacher to 20-30 students, possibly a part-time aide). Art, music, library and physical education, although encouraged as a vital part of classroom learning, are also departmentalized to separate centers and/or itinerate teachers. Equipment and materials listed are most necessary within the centers. The rating is related to classroom teacher use, not specialist use, in activities and instruction with students.

This list is NOT complete for any teacher, but is offered as an available resource material guideline. As each student is unique, so each classroom will be unique and the teacher will want to adapt such a list to school facilities and to meeting individual needs within the classroom.

SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

A Later Elementary School Group

20-30 CHILDREN—AGES 8-10

SUGGESTED ITEMS	QUANTITIES
SECTION A: CLASSROOM FACILITY NEEDS	
I BASIC ENVIRONMENTAL EQUIPMENT QUANTITIES	
A *Necessary* for use within classroom (or to have available for use)	
Bookcases or shelves to meet needs (minimum of 2, possibly more)	2
Bulletin board (attached to wall) (minimum of 1, possibly more)	1
Bulletin board (portable) with chalk or whiteboard on other side	1
Cabinets, storage (73" x 36" x 15")	2
Chairs, adult size, straight	2
Chairs, student (one for each student at table/desk, plus several for group activity centers)	30+
Chalkboards, stationary (whiteboard preferred)	2
Chart holders	2
Clock (wall)	1
Desk, teacher	1
Desks, student, double (see tables)	10-15
Flags:	
State	1
United States	1
Kitchen facilities available: stove, refrigerator, hot plates	1
Pencil sharpener (rotated plate for sizes)	1
Scissors (teacher)	2
Soap dispenser, liquid	1
Stapler, standard with staples	1
Storage bins, for blocks, supplies, etc.	2
Strainer	1
Tables, adjustable, to vary according to needs (trapezoid, round, oblong, rectangular), used in place of desks. Or 2-3 work tables around room for centers. If tables are used for seating, cubbyholes need to be included as part of the shelving/storage area in the room	10-14
Towel dispenser	1
Wastepaper baskets	2-3
B *Suggested* supplementary materials:	
Blinds or window shades sufficient to darken room	
Carpeting (in specific areas, not whole room)	
Chairs, accessory	
Child's beanbag chair	1
Child's floor pillows	3-5
Chalkboard (whiteboard), portable	1
Mirror, full length	1
Sink	1

SUGGESTED ITEMS	QUANTITIES
II BASIC EXPENDABLE MATERIALS:	
(Estimates are based on a single school year's consumption. Suggest that materials be available in a central supply room where teachers can check out quantities sufficient for classroom during a given period.)	
A *Necessary* for access/use within classroom:	
Chalk, yellow, dustless (boxes) or whiteboard markers, assorted colors	2
Chalkboard or whiteboard erasers	12
Chart tablets, large, ruled, for experience charts	3
Colored folders (100 per pkg.), assorted colors	2
Markers, felt tip (set of 8 assorted colors)	2
Paper:	
Duplicating (reams)	6
Master copy, for duplicator (box)	1
Typing (reams)	2
Paper (writing):	
*8" x 10" with 3/8" ruling (reams)	
*Note: Only for grades 3 and up	2
9" x 12" with 1" ruling (reams)	2
9" x 12" without rulings (reams)	2
Pencils, no. 2, dozen	4
Pens, red, blue, black (for teacher use)	
Rubber bands, assorted sizes (4 ounce, boxes)	2
School letterhead stationery and/or memo checklists for parent communication	
Tagboard	
Manila, 12" x 18" (pkgs. of 100 sheets)	3
White, 12" x 18" (pkg. of 100 sheets)	1
Tape, adhesive:	
Masking (rolls)	2
Mending (box)	1
Scotch, magic, transparent, 1/2" x 700" width, dispenser (rolls)	4
Thumbtacks (boxes)	3
Thermofax (box) for photocopying transparency	1
Tissue paper (boxes), per class	10
Transparencies (box of 100)	3
Transparency pen, permanent (pkg. assorted colors)	1
Transparency pens, washable (pkg. assorted colors)	2
B *Suggested* supplementary materials:	
Brads (boxes)	2
Bulletin board magnets and/or clips	X
Chalk chucks (to hold chalk if chalkboards are used)	2
Gummed labels (boxes)	2

SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

A Later Elementary School Group

20-30 CHILDREN—AGES 8-10

SUGGESTED ITEMS	QUANTITIES
Kraft rolls, assorted colors	6
Lettering pens (also an art supply)	2-6
Magnets (see Science)	
Paper clips (boxes of 100)	4
Paper fasteners (boxes of 100), 1" and 3/4"	4
Pencil erasers, soft rubber (dozen)	2
Reinforcers (box of 200)	2
Safety pins (box of 100)	1
String ball	1
Suspension rings, 1", 1 1/2", 2" (box of 100)	4
Writing paper:	
9" x 12" imaginary line paper (reams)	3

III HOUSEKEEPING EQUIPMENT AND SUPPLIES

NOTE: Suggested these items be kept by custodial staff rather than in classroom.
(*Items are suggested for use in cl..srooms with sinks.)

Brooms:	
Corn, light weight, straight, adult size	1
Push, long handle	1
Brushes:	
Counter style	1
Hard scrub	4
Buckets, flat bottom	2
*Cleanser (cans)	4
Dishpan, plastic	1
Dustpan	1
Mop, sponge	1
Soaps:	
Flakes or granulated (box)	2
*Liquid (gal.)	1+
*Sponges, minimum	3
*Towels, paper (case of 3000)	5
Vacuum cleaner (access to)	1

IV HEALTH AND FIRST AID

A *Necessary* for access/use within the classroom:

First aid cabinet stocked in accordance with individual school regulations, available in nurse's office or central supply area	1
Blankets	2
Cots	2
Instant-ice pack	1

B *Suggested* supplementary material:

Bandages, plastic strips (boxes)	2
Gauze, sterile (roll)	1
Medicated soap (bars)	2
"Methiolate" disinfectant (bottle)	1
Tissues (boxes)	10-12
Tweezers	1

V PSYCHO-MOTOR EQUIPMENT

NOTE: Suggest these items be available through physical education department or grade level center.

SUGGESTED ITEMS	QUANTITIES
(*Items are suggested for all classrooms.)	
A *Necessary* for access/use by classroom:	
Audiovisual materials (in A.V. or media center for rhythm, coordination, movement)	
Balls:	
*Indoor/outdoor, roll & kick, inflatable, (13" diameter)	3
*Indoor/outdoor, roll & kick, inflatable, (10" diameter)	3
Push & toss beachballs, latex, (18" diameter)	3
Push & toss beachballs, latex, (24" diameter)	3
Throw, bat & catch, cork center, scuff proof cover	3
Toss & catch, rubber (7" diameter)	3
Toss & catch, rubber (8" diameter)	3
Bats, small size, for children 8-10 yrs.	2
*Bean bags	8+
*Building blocks, Legos, Lincoln logs (sets)	3
Hoops	8-10
Jump ropes (single child)	4-6
Jump ropes (groups of children), minimum	1-2
*Ring toss (sets)	2-4
Tumbling mats (4' x 6')	4
Walking beam or board with cleats on ends	1
B *Suggested* supplementary materials:	
*Climbing aparatus, indoor/outdoor, for movement exploration	1-2
*Erector (set)	1
Horizontal bars (set)	1
Horizontal ladder	1
See-saws	2
Slide	1
Swings	3
Tinkertoys, giant (set)	1
*Tinkertoys, regular (set)	1
Tires: old auto, bike or airplane	2-4
Traveling ring (set)	1

SECTION B: MEDIA CENTER NEEDS

VI AUDIOVISUAL MATERIALS - MEDIA CENTER

NOTE: Suggest these items be available in the media center for check-out. (*Items also suggested for each classroom.)

A *Necessary* for access/use within the classroom:	
*Alphabets, manuscript and cursive letters	2
*Books, good quality, paperback and access to library	50+
*Cassette players with earphones for learning centers (others available in media center)	2
*Cassette recorder, with blank cassettes	1

SUGGESTED ITEMS	QUANTITIES
Cassettes, records, CDs available in academic, literature, enjoyment and entertainment areas (commercially produced)	
*Cassettes, blank for classroom use (others available in media center)	10-15
CD players with earphones	2
Charts, related to subject/interest area topics for grade levels	
Films, filmstrips, slides, videos (related subject/interest area topics by grade level)	
Filmstrip viewers	3
Globes:	
Large	1
Project	1
Relief	1
*Simplified	1
*Language masters with cards	2
Earphones and jacks	6-8
*Microcomputers with subject/interest area software	2
Microcomputers software in related subject/interest area at each grade level	1
Projectors: film/movie, filmstrip, micro, slide, opaque, overhead	
*Overhead	1
*Record player/with records from media center (others available in media center)	1
*Screen (pull-down)	1
*Television (VCR/VHS equipped)	2
Typewriter	1
Typewriter (electric) for teacher use	1
Video cameras with film	2

B *Suggested* supplementary materials:

Cameras:	
Instamatic, cheap cameras for children to use, plus film	2
Instant developing camera, plus film	1
8 mm camera and projector, plus film	2
*Computer monitor with network to library (CD-ROM)	1
Language masters with cards	2
Microcomputer lab with equipment (15-20 computers)	1
*Radio	1
Textiles	

SECTION C: ACADEMIC AREA NEEDS

Suggestion: If no science lab, resource storage room, etc., is available, have excess science materials in one room, math in another, etc. on each grade level. Thus, it is not necessary to store all materials in every room.

VII ARTS AND CRAFTS

Note: Suggest the majority of these items be in the art room or center. Teachers may check out materials as necessary to coordinate art activities with classroom instruction. (*Items also suggested for each classroom.)

A *Necessary* for access/use with art instruction:

Art paper:	
Construction, 12" x 18", assorted colors (pkgs. of 100)	5
Finger paint, 16" x 22" (pkg. of 100 sheets)	4
Manila, 12" x 18" (reams)	3
*Mural, 36" wide (roll)	1
*Newsprint, 9" x 12", assorted colors (pkg. of 100 sheets)	3
*Poster, 9" x 12" (pkg. of 100 sheets)	3
*Poster, 12" x 18", assorted colors (pkg. of 100 sheets)	2
Project paper (rolls), 8 basic colors plus white	6
*Containers (1/2 pt., pint, plastic, with covers), for paint, etc.	12-18
*Crayons, regular mixed colors (box of 8)	15
*Easels, standing	3
*Easels, table (foldable for easy storage)	6
*Flannel board (per classroom)	1
*Garbage can, plastic, with liner & cover, for clay	1
*Elmer's™ glue, white (gal.) with small dispenser bottles	3
Paint, finger, assorted colors (1 quart jars)	6
Paint remover (1 quart)	1
Paper bags (assorted sizes) per classroom	60
*Paper cutter (12")	1
Paper cutter (25")	1
Pencils, assorted colors (boxes)	10-15
Scented, assorted color markers (1 set per child)	20-30
*Scissors, include left-handed pairs, some blunt, some sharp points	25
Stapler, long-arm or reach (12" or more), with staples	1
Yarn balls, assorted colors (per classroom)	6-8

B *Suggested* supplementary materials:

Aluminum foil (rolls per classroom)	2
Aquarium gravel (lbs.) for art activities	10
Blocks, assorted shapes, sizes and colors, for art activities	20-30
Brushes:	
*3/4" bristles, 12" handles and shorter	12
*1" bristles, 12" handles and shorter	12
Chalk, non-oil base, assorted colors (box of 144)	1
*Clay (mixed 1 lb. pkgs.)	25
Cloth:	
Burlap (yards per class)	2
Felt, pieces for applique work (pkg. per class)	1
Meshed for stitchery (yds. per class)	3
Muslin, unbleached (yds. per class)	2
Contact, self-adhesive plastic (yds. per class)	6
Coping saws	2
Design cubes (sets)	2
Eyelet punches with boxes of eyelets	2
Glue, rubber cement (qt. per class)	1
*Glue, semi-liquid paste (gal. per class)	2
Glue, thinner (pt. per class)	1
Laundry starch, liquid, for making finger paint or papier-mâché (gal.)	2
*Muffin tins, (6 per tin), for paint containers	4-8
Needles for crewel and embroidery (pkgs.)	2
Needles, large eye, pointed for weaving (3" & 5" pkgs.)	4
Paint: (per classroom)	
Finger (qt. jars), assorted colors	6
Poster (qt. jars), assorted colors	8
Powder (lb. boxes), red, yellow, green, blue, black, white, brown	12-16+

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A Later Elementary School Group

20-30 CHILDREN—AGES 8-10

SUGGESTED ITEMS	QUANTITIES
Paper: (per classroom)	
Corrugated, 4' x 25', assorted colors (rolls)	3
Crepe, flame resistant, 20" x 25", assorted colors (rolls)	2
*Manila, 9" x 12" (reams)	6
Newsprint, 18" x 24" (reams)	4
*Tissue, art kraft (pkg.)	1
*Tissue, white tracing (pkg.)	2
Paper plates, assorted sizes (per classroom)	100
Project paper holders (8 roll)	1
Scissors, shears	1
*Soda straws (boxes)	5
Staplers, small, with staples	6-8
Tongue depressors & popsicle sticks (assortment)	
Waxed paper (rolls per classroom)	4
Wheat powder (lbs.), for making finger paint or papier-mâché	8-10

A RECYCLABLE MATERIALS

*Recyclable materials (suggested accumulation of recyclable or throw-away materials for enhancing creativity in the classroom. Storage area is necessary. All items must be clean and free from rough, sharp edges).

Buttons
Candy boxes with partition trays
Cardboard: boxes, cartons, corrugated and other sheets, tubing from paper rolls, etc.
Carpet sample books
Catalogues (pictures)
Cellophane grass used in packaging
Coffee cans
Egg cartons
Facial tissue boxes
Fruit boxes with partitions and trays
Gift wrapping paper, odds and ends
Hosiery boxes, novelty
Magazines (pictures, colored paper, words)
Margarine & cottage cheese containers with lids
Metal boxes, containers for cookies, fruitcakes, etc.
Newspapers, old
Supplements for colored pictures
Ad sections for painting on, papier-mâché and stuffing
Plastic items: bottles, boxes, cups, fruit/meat trays, lids & tops, etc.
Ribbon bits and lengths
Scraps of carpeting, contact paper, cloth, felt, sandpaper, yarn, etc.
Spools, large & small
Styrofoam chips & packing
Tennis ball cans (or similar)

SUGGESTED ITEMS	QUANTITIES
Tin cans, empty and graduated sizes	
Wallpaper, vinyl covering, leftovers and display books	

B WOODWORKING

* Woodworking suggested for carpentry shop area with balsa, sandpaper, etc. available for classroom and art teacher, but not necessarily in classroom or art center.

Alcohol (qt.)
Brace, non-ratchet & bits, 1/4", 1/2", 3/4", and 1" (set)
Carpenter's workbench with vise or tables, sawhorses with vises
C-clamps (4"-6")
Claw hammers (13-16 oz.)
Dowel rods (1/4", 1/2", 3/4", 1")
File, wood, half-round
Hand drill (1/4" capacity) and bits (set)
Linseed oil (qt.)
Lumber:
Mill-ends
Pine, white, surfaced on both sides 1" x 4", 1/2" x 3", 1/4" x 1", 2" x 4", in 4'-6' lengths
Measuring tape, inch and centimeter markings (6' and 9' lengths)
Nail nipper or 6" pliers
Nails, assorted sizes and types, lbs.
Rasp, medium
Sandpaper, fine, medium coarse, quire
Saws, cross-cut (18" blades)
Screw eyes (box)
Screwdrivers, Phillips and straight
Screws, assorted sizes (boxes)
Shellac, white (gal.)
Smoothing plane
Try squares
Turpentine (qts.)
Wrench, monkey (12")
Wood: balsa, beaver board (4' x 4' sheets), tri-wall (4' x 4' sheets), wooden disks, 3"-5" diameter, button molds 1/2" sizes from 1"-3"

VIII LANGUAGE ARTS

A *Necessary* for access/use within the classroom:	
Alphabet wall charts (cursive)	2
Bookends (pairs)	2+
Bookholders or racks for small books	2+
Companion books (sets): complete script on record or cassette for read-along activity	6-8
Games: anagrams, link letters, old maid, phonics rummy, picture scrabble, vowel lotto, etc.	8-12

SUGGESTED ITEMS	QUANTITIES
Puzzles, sequence, game and picture	10-15
Reading charts	6-12
Recordings of stories and poems (records, cassettes, etc.)	6-12
Records/tapes for teaching listening skills, following directions, etc. (or make own), store in media center	3-5
Wall cards (see Media Center)	10-24
B *Suggested* supplementary materials:	
Representative play material:	
Costumes for creative dramatics with storage chest	
Typewriters (old for children's use)	2

IX MATHEMATICS

A *Necessary* for access/use within the classroom:	
Abacus	2
Blocks:	
Attribute blocks	6
Counting, table (sets)	2
Cuisenaire rods, classroom (set)	1
Floor, large, building (set)	1
Geo (set)	1
Number bars or rods (set)	2
Proportional numbers (set)	1
Clocks:	
Large, wooden face, gear-operated hands	1
Small, wooden face, manually operated hands	6-10
Computer programs to coordinate with grade level material	X
Counting sticks	5
Flash cards (different types), sets	X
Games: Bingo, Dominoes, link number, magic targets, math balance and scale, number floor line with bean bags, skittles, etc.	6-12
Magnetic board with numbers	1
Math charts	X
Measures, linear:	
Giant ruler, with 1", 1/2" and 1/4" markings	1
Meter stick, large (90 centimeters)	1
Meter stick, small (30 centimeters)	1
Reverse rulers, inch markings on one side, meter on the other	10
Rulers, 1", 1/2", and 1/4" markings	20+
Tape measure with inch and centimeter markings	1
Yardsticks	1
Measures, liquid and dry: cup, pt., qt., gal., plastic (set)	1
Measures, scales:	
English	1
Metric	1
Measures, thermometers, Fahrenheit and centigrade, indoor and outdoor	2
B *Suggested* supplementary materials:	
Calculators	5
Clock faces (suggest making own)	X
Money, coins	X
Rubber stamps	X
Thermometer, large cardboard model for teaching	1+

X MUSIC

*The following are necessary for the music room. Teachers may want to borrow certain items for different classroom activities.

Audiovisual equipment: cassette recorder/player, record player, video player, etc.	X
Autoharp, 12 bar	1
Bell sets:	
Chime	1
Melody	1
Resonator	1
Song	1
Step	1
Tone-turned	1
Bells, single	3
Cassettes, records, recordings of a variety of music and sing-alongs	X
Castanets, hand (pairs)	2
Clappers	2
Cymbals:	
7" brass (pair)	1
Finger (pairs)	2
Drums	2
Listening-station equipment with earphones and jacks (8)	1
Manipulative scale blocks (set of 8)	1
Maracas (pairs)	2
Marimba or xylophone	1
Music books:	
Rhythm	2-4
Song	3-6
Piano	1
Records:	
Exercise	2-4
Folk dance	2-4
Rhythm	3-6
Singing	4-8
Rhythm sticks	6
Sand blocks (pairs)	3
Tambourine	1
Teaching aids:	
Boards (chalk or white) with the scale lines permanently affixed	1
Chalk (or whiteboard) scale (bar) liners	2
Chromatic pitch pipe	1
Music charts	
Tom-tom, Chinese or Indian	1
Tone blocks	2
Triangle	1

XI SCIENCE

* Recommended: science lab, for experiments and where majority of equipment is stored.

A *Necessary* for access/use within the classroom:	
Balloons	10-18
Compass, magnetic	1
Computer materials and programs applicable to scope of grade level	X
Containers, clean plastic with cork or screw-on plastic covers	20+
Kitchen facilities: refrigerator, hot plate or stove, sink	X
Magnifying glass, large, on stand	1
Magnifying glasses, small with handle for group/learning centers	4+
Microscope (access to)	1+
Seeds from flowers, fruits, vegetables	X
Terrarium with glass cover (access to)	1

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SUGGESTED EDUCATIONAL EQUIPMENT AND MATERIALS FOR:

A Later Elementary School Group

20-30 CHILDREN—AGES 8-10

SUGGESTED ITEMS	QUANTITIES
Timers: egg and clock type, one each	2
Tuning fork	1
Weather vane	1
B *Suggested* supplementary materials: (available within science lab)	
Ant farm	1
Aquarium with glass cover	1
Barometer	1
Bicycle pump	1
Bulbs, garden	8-12
Cages, with removable bottoms for birds, hamsters, gerbils, rabbits	2
Cooking equipment:	
Baking pans	
(9 x 13 cake pan)	1
(8 x 8 cake pan)	1
(bread pan)	1
(cookie sheet)	1
(cupcakes pan)	1
(pie pan)	1
(round, 8", layer cake pans)	2
Bowls:	
Glass, mixing, assorted sizes	2
Plastic mixing with lids	3
Electric skillet	1
Hot plate	1
Ladle	1
Measures:	
Cups (set)	1
Spoons (set)	1
Plates, cups, eating utensils (paper or plastic)	X
Sauce pans with lids (3 qt. & 4 qt., one each)	2
Small oven	1
Spatula (set)	1
Spoon for mixing	1
Electric bell with wire, dry cells (set of 2)	1
Flower containers: boxes, pots, vases in various sizes	6-8
Food for pets	
Incubator (access to)	1
Insect cages	1-3
Iron filings, 20 mesh (pkg.)	1
Magnets (horseshoe and bar, 2 of each)	4
Preserving fluid, for specimens (1 qt.)	1
Prisms	2
Test tubes and beakers	3-5

SUGGESTED ITEMS	QUANTITIES
C *Practical*, but not necessarily used by teacher:	
NOTE: Suggest the following items be stored in maintenance services, and borrowed when needed.	
Gardening equipment:	
Hoes	3
Hose (20')	1
Rakes	3
Shovels	2
Spade	1
Sprinkler	1
Trowels	2
Watering cans	2
XII SOCIAL STUDIES	
A *Necessary* for access/use within classroom:	
A.V. equipment: cameras with film and flash bulbs, cassette players and recorders, record players, video cameras and players	X
A.V. materials: cassettes, films, filmstrips records, videos, etc. related to scope of social studies program	X
Community resource file: people and places	1
Computer programs applicable to subject area and age level interest	X
Flags, international (set), especially representing cultural backgrounds representative of class structure	1
Magazines: for likenesses and differences in cultures, community life, etc. (i.e., *National Geographic*)	
Maps	
Community	1
Nation	1
State	1
World	1
News bulletin board	1
Newspapers (children)	X
News releases (television)	X
B *Suggested* supplementary materials:	
Activity cards (can be teacher made)	8-12
Community accessories:	
Building materials	X
Human and animal figures (3" to 8" tall)	6-12
Vehicles and machines (3" to 16" long)	6-12
Newspapers (adult)	X
News releases (radio)	X
Role playing properties (career, family, etc.)	X
Simulation games	4-6

A Middle School Group

20-30 CHILDREN—AGES 11-14

P. Elizabeth Pate

Later Childhood/Early Adolescence Committee Chairperson, Judith Reiff

From the inception of middle schools in the 1960s until the present, tremendous progress has been made toward meeting the needs of young adolescents. In recent years, several concepts have been identified as being characteristic of exemplary middle schools (Beane, 1990; George & Alexander, 1993). These concepts include: flexible scheduling, adviser/advisee programs, interdisciplinary and integrated teaching, and teams of teachers working together.

Perhaps the most important concept associated with middle schools is the interdisciplinary team. MacIver (1990) describes interdisciplinary teams as "a keystone for effective education in the middle grades" (p. 460). Interdisciplinary teams are small groups of teachers, generally representing each of the content areas, who teach the same group of students (Muth & Alvermann, 1992). The team usually consists of a science teacher, a social studies teacher, a mathematics teacher and a language arts teacher. Sometimes other teachers are associated with the teams, including reading teachers, exploratory teachers, physical education teachers, music teachers and art teachers. Interdisciplinary teams "join a small community in which people—students and adults—get to know each other well to create a climate for intellectual development" (Carnegie Council on Adolescent Development, 1989, p. 37).

Teachers on interdisciplinary teams plan many types of curricula. For instance, teams of teachers may plan discipline-based lessons, parallel discipline lessons, interdisciplinary units and integrated units (Jacobs, 1989). Discipline-based lessons focus entirely on one content area, such as mathematics. These lessons are generally taught within a specific time-block during the school-day.

Parallel lessons are corresponding lessons in the same topic area across disciplines. For example, students on an interdisciplinary team may learn about the Civil War in their social studies class and at the same time read *Across Five Aprils* in their language arts class. The social studies teacher and the language arts teacher coordinate these lessons. Parallel lessons are generally taught within a specific time-block during the school day.

An interdisciplinary unit is a "series of interconnected lessons on a general topic" (Kauchak & Eggen, 1989, p. 215). Interdisciplinary units allow students to see how the various disciplines overlap and influence each other. For example, the topic of an interdisciplinary unit might be "The Olympics." Several or all of the teachers on the interdisciplinary team plan together to create lessons focusing on "The Olympics." The social studies teacher might trace the history of the Olympics, the physical education teacher might re-enact Olympic games and the exploratory teacher might introduce students to Greek terminology. The lessons from the interdisciplinary units might last a day, a week or even a year.

According to Beane (1990), integrated units require students and teachers to collaborate in designing curriculum that focuses on student questions and concerns. For example, two 8th-grade teachers and their students recently collaborated on an integrated unit focusing on human interactions (Pate, Homestead & McGinnis, 1993). As part of the unit, students selected topics, developed essential questions and designed alternative assessments. A

group of five girls chose "Animal Testing" as their topic. They researched the topic, wrote to various companies and developed a plan of action to implement. They were interested in what they were learning and therefore became active participants in their own education. Flexible block-scheduling was used throughout the unit.

A wide variety of equipment and materials is required for interdisciplinary teams in middle schools in order to successfully implement discipline-based lessons, parallel discipline lessons, interdisciplinary units and integrated units. The following is a list of educational equipment and materials recommended for interdisciplinary teams of teachers. The items suggested in this list are in addition to content-specific equipment and materials.

Suggested Educational Equipment and Materials for Middle Schools
T = Teacher Tm = Team of Teachers S = School

EQUIPMENT	
Calculators	T
Camera, 35mm	Tm
CD-ROM	T
Computers/printers	T
Copy machine	Tm
Filmstrip projector	Tm
Laminator	S
LCD screen	Tm
Letter cutter	S
Modem	Tm
Projection screen	T
Slide projector	Tm
Tape recorder	T
Telephone	Tm
TV	T
Typewriter	Tm
VCR	T
Video camera/tripod	Tm

CONSUMABLES	
Audio tapes, blank	T
Batteries	Tm
Camera film	T
Chalk, white	T
Color markers	T
Color pencils	T
Construction paper	T
Crayons	T
First aid kit	T
Glue	T
Glue sticks	T
Graph paper	T
Markers, color overhead	T
Nails	T
Paper	T
Paper towels	T
Pencils	T
Postage stamps	Tm
Post cards, blank	Tm
Poster board	T
Poster paint	T
Rewards	T
Rubber cement	T
Soap	T
Stationary/envelopes	Tm
Transparencies	T
Video tapes, blank	T
Writing journals	T

OTHER	
Bookshelves	T
Broom	T
Bulletin boards	T
Common area	Tm
Costumes	S
Desks	T
Display area	Tm
Dust pan	T
File cabinets	T
Glue gun	Tm
Hammer	T
Manipulatives	T
Microwave	Tm
Mop	T
Outside learning area	S
Paint brushes	Tm
Podium	T
Refrigerator	Tm
Rulers	T
Screwdriver	T
Sink/water	Tm
Stage	S
Staplers	T
Storage containers	T
Stove	Tm
Tables	T
Transportation	S
Vacuum cleaner	Tm
Write-on-board	T

RESOURCES	
Almanacs	Tm
Atlas	Tm
Computer software	Tm
Dictionaries	T
Encyclopedias	Tm
Filmstrips	Tm
Globes	Tm
Magazines	Tm
Newspapers, current	Tm
Telephone books	Tm
Textbooks	T
Thesaurus	Tm
Trade books	T
Trade books w/audio and video	Tm
Videos	Tm
Wall maps	T

RESOURCE PEOPLE	
Authors	S
Counselors	S
Mathematicians	S
Performers	S
Politicians	S
Scientists	S
War veterans	S

References

Beane, J. A. (1990). *A middle school curriculum: From rhetoric to reality*. Columbus, OH: National Middle School Association.

Carnegie Council on Adolescent Development. (1989). *Preparing American youth for the 21st century*. Washington, DC: Author.

George, P. S., & Alexander, W. M. (1993). *The exemplary middle school* (2nd ed.). New York: Harcourt Brace Jovanovich.

Jacobs, H. H. (1989). Design options for an integrated curriculum. In H. H. Jacobs (Ed.), *Interdisciplinary curriculum: Design and implementation* (pp. 13-24). Washington, DC: Association for Supervision and Curriculum Development.

Kauchak, D. P., & Eggen, P. D. (1989). *Learning and teaching*. Boston: Allyn and Bacon.

MacIver, D. J. (1990). Meeting the needs of young adolescents: Advisory groups, interdisciplinary teaching teams, and school transition programs. *Phi Delta Kappan, 71*(6), 458-464.

Muth, K. D., & Alvermann, D. E. (1992). *Teaching and learning in the middle grades*. Boston: Allyn and Bacon.

Pate, P. E., Homestead, E., & McGinnis, K. (1993). Designing rubrics for authentic assessment. *Middle School Journal, 25*(3), 25-27.

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